MINI COLOR SERIES 7515

Stryker

Interim Armored Vehicle

Carl Schulze & Ralph Zwilling

MINI COLOR SERIES 7515

Stryker

Interim Armored Vehicle

Text & Photos by Carl Schulze & Ralph Zwilling
Illustrations by Laurent Lecocq

CONCORD
PUBLICATIONS COMPANY

Copyright © 2007
by CONCORD PUBLICATIONS CO.
10/F, B1, Kong Nam Industrial Building
603-609 Castle Peak Road
Tsuen Wan, New Territories
Hong Kong
www.concord-publications.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Concord Publications Co.

We welcome authors who can help expand our range of books. If you would like to submit material, please feel free to contact us.

We are always on the look-out for new, unpublished photos for this series. If you have photos or slides or information you feel may be useful to future volumes, please send them to us for possible future publication. Full photo credits will be given upon publication.

ISBN 962-361-141-2
printed in Hong Kong

Abbreviations

ACADA	Automatic Chemical Agent Detection Assembly
ACU	Air Conditioning Unit
AFATDS	Advanced Field Artillery Tactical Data System
AFES	Automatic Fire Extinguishing System
AMP	Angled Mine Plow
AOE	Army of Excellence
APC	Armored Personnel Carrier
API	Armor Piercing Incendiary
API-T	Armor Piercing Incendiary-Tracer
APU	Auxiliary Power Unit
AR/AAV	Armored Reconnaissance/Airborne Assault Vehicle
ASAS	All-Source Analysis System
ASIP	Advanced SINCGARS Improvement Program
ATGM	Anti-Tank Guided Missile
BADB	Blast Attenuator Device Bed
BAS	Battalion Aid Station
BCS3	Battle Command Sustainment Support System
BSB	Brigade Support Battalion
BUA	Brigade Unit of Action
C4ISR	Command, Control, Communication, Computer, Intelligence, Surveillance and Reconnaissance
CBMS	Chemical Biological Mass Spectrometer
CCP	Casualty Collection Point
CFV	Cavalry Fighting Vehicle
CHATS (CI/HUMINT)	Counter Intelligence/Human Intelligence Automated Tool Set
CV	Command Vehicle
CONUS	Continental USA
COTM	Charge on the Move
DAGAR	Defense Advanced GPS Receiver
DAMA	Demand Assigned Multiple Access
DISCOM	Division Support Command
DOT&E	Defense, Operational Test and Evaluation Directorate
DPICN	Dual-Purpose Improved Conventional Munitions
DRFP	Draft Request for Proposal
DTSS	Digital Topographic Support System
DVE	Driver's Vision Enhancer
EGS	Embedded Graphics Subsystems
EPLRS	Enhanced Position Location Reporting System
ESV	Engineer Squad Vehicle
ETM	Embedded Training Module
ETSS	Embedded Training System Software
FAADC2	Forward Area Air Command and Control
FBCB2	Force XXI Battle Command Brigade and Below
FCS	Future Combat System
FCU	Fire Control Unit
FLIR	Forward Looking Infrared
FOS	Forward Observer System
FSV	Fire Support Vehicle
FSB	Forward Support Battalion
GAO	General Accounting Office
GCCS-A	Global Command and Control System - Army
GDLS	General Dynamics Land Systems
HEAT	High Explosive Anti-Tank
HEDP	High Explosive Dual-Purpose
HEUI	Hydraulically-actuated Electronically-controlled Unit Injector
HMS	Height Management System
HQ	Headquarters
IAV	Interim Armored Vehicle
IBCT	Interim Brigade Combat Team
ICV	Infantry Carrier Vehicle
IED	Improvised Explosive Device
IETM	Interactive Electronic Technical Manual
IFV	Infantry Fighting Vehicle
IOT&E	Initial Operational Test and Evaluation
JFK	Jettison Fitting Kit
JSTARS	Joint Surveillance Target Attack Radar System Common Ground Station
LFT&E	Live Fire Test & Evaluation
LMS	Lane Marking System
LRAS3	Long Range Advanced Scout Surveillance System
LRIP	Low-Rate Initial Production
LWCMS	Lightweight Company Mortar System
LWMR	Lightweight Mine Roller Kit
MAV	Medium Armored Vehicle
MC	Mortar Carrier
MC4	Medical Communication for Combat Casualty Care
MCS	Maneuver Control System
MBT	Main Battle Tank
MELIOS	Mini Eye-safe Laser Infrared Observation Set
MEV	Medical Evacuation Vehicle
MEXAS	Modular Expandable Armor System
MFCS	Mortar Fire Control System
MGS	Mobile Gun System
MICLIC	Mine Clearing Line Charge
MITAS	Modified Improved Target Acquisition System
MP	Military Police
MSD	Magnetic Signature Duplicator
MTOE	Modified Table Of Organization and Equipment
NBC	Nuclear Biological Chemical
NBCRV	Nuclear Biological Chemical Reconnaissance Vehicle
NCO	Non-Commissioned Officer
NTDR	Near-Term Digital Radio
NVS	Night Vision Sight
OIF	Operation Iraqi Freedom
ORD	Operational Requirement Document
PDMA	Power and Data Management Architecture
PVT	Production Verification Test
REMBASS II	Remotely Monitored Battlefield Sensor System II
RMS6-L	Recoiling Mortar System 6-L
RPG	Rutschnoi Protiwotankowij Granatomjot
RV	Reconnaissance Vehicle
RWS	Remote Weapon Station
SATCOM	Satellite Communication
SBCT	Stryker Brigade Combat Team
SCR	Stryker Cavalry Regiment
SINCGARS	Single Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Router Network
SOB	Surface Obstacle Blade
SOTM	SATCOM on the Move
SMP	Surface Mine Plow
TACOM	Tank Automotive and Armament Command
TAIS	Tactical Airspace Integration System
TAS	Target Acquisition System
TOW	Tube-launched, Optically-tracked, Wire-command link-guided
TRADOC	U.S. Army Training and Doctrine Command
TUAV	Tactical Unmanned Aerial Vehicle
TWS	Thermal Weapon Sight
UAV	Unmanned Aerial Vehicle
UoA	Unit of Action
UoE	Unit of Employment
VBIED	Vehicle-Borne Improvised Explosive Device
VDT	Video Display Terminal
WIN-T	Warfighter Information Network - Tactical

Stryker Brigade Combat Team - A new type of force

In October 1999, the Chief of Staff of the U.S. Army, General Eric Shinseki, outlined the transformation of the U.S. Army to an "Objective Force" by 2010. Compared with the current U.S. Army, the "Objective Force" will be a lighter but still extremely lethal and survivable force that can deal with the whole range of possible scenarios from humanitarian missions and disaster relief, to peacekeeping, regional conflicts and major theater wars. The transformation plans are based on the fact that the world security situation has changed drastically since the end of the Cold War. It requires the U.S. Army to more frequently conduct small-scale contingency operations at short notice rather then major theater war fighting after a long, steady build-up. Between 1990 and 1999, the U.S. Army conducted 53 operational deployments with the majority of these being small-scale contingency operations. However, the "Objective Force" must also be able to fight major theater wars. One key operational feature of the "Objective Force" will be its capability to rapidly deploy worldwide at short notice by tactical transport aircraft. Another key operational capability of the "Objective Force" will be that it has the same lethality and survivability as current heavy forces. In order to reach the goal of combining light and heavy force capabilities, units of the "Objective Force" will be equipped with the Future Combat System (FCS), a new family of manned and unmanned fighting platforms. Development of the FCS is currently underway, but fielding will not start before 2014, with full transformation scheduled to be completed in 2032. Up till this time, "Legacy Forces" and newly formed "Interim Forces" will have to deal with upcoming missions.

"Legacy Force"

The existing "Legacy Force" of the U.S. Army is organized after the "Army of Excellence" structure introduced in the early 1980s. In the mid-1990s, the U.S. Army conducted the "Forces XXI" Program aimed at finding ways of introducing emerging technologies from the information technology revolution. Among other areas, the "Forces XXI" Program focused on the structure of future forces. The program provided high-value information for the development of the "Objective Force", and among other results, it led to the introduction of new Command, Control, Communication and Computer (C4) technology. It also inspired minor structural changes at the brigade and division level, but a totally new structure suggested as a result of the program was never introduced. This was necessary to allow the "Legacy Force" to conduct effective operations over the whole mission spectrum up to the establishment of the "Objective Force", and also to allow a smoother change to the future structure. Therefore, as a first step of transformation to the "Objective Force", the "Legacy Force" was restructured. Divisions become Units of Employment (UoE) and Brigades were designated as Brigade Units of Action (BUA). A UoE consists of four BUAs, a Fires Brigade (artillery), an Aviation Brigade, a Sustainment Brigade (logistics) and a Special Troops Battalion.

The cornerstone of the new structure is the BUA, an all-arms force that can operate independently without external support. Furthermore, it can be fully integrated into a joint combined force structure and be tailored to a mission. While the reorganization improved the capabilities of the U.S. Army in terms of deployment speed and operational flexibility, it did not bridge the capability gap between light and heavy forces. The integration, preparation and deployment of heavy forces takes too long to deal with quickly emerging contingencies. Therefore, they could not be used as an early-entry force. They are also not equipped to deal with an enemy in difficult terrain such as jungles or mountains. On the other hand, light forces that could be deployed at short notice and can operate in difficult terrain lack combat power and sustainability to fight a well-equipped enemy force for a longer period of time. This is especially a problem if the enemy can deploy a limited quantity of any sort of armor or heavy weapons. An interim solution was required to solve the problem up to the time when "Objective Forces" become operational. Therefore, the U.S. Army decided to establish a new type of ad-hoc force called the Interim Force or Interim Brigade Combat Team (IBCT).

Interim Brigade Combat Team capabilities

The IBCT is a full-spectrum combat force with the capability of operating in all environments, but it is designed and optimized primarily for employment in small-scale contingency operations in complex and urban terrain. The IBCT can confront low-end and mid-range threats that may employ both conventional and asymmetric capabilities. Deployment of the whole IBCT can be done within 96 hours to anywhere in the world in transport aircraft. Immediately upon arrival of its first assets, the IBCT can conduct early-entry operations and effective combat operations to prevent, contain, stabilize or resolve a conflict through shaping and decisive operations. When taking part in stability and support operations, the IBCT additionally acts as an early-entry force to provide security for stabilization forces by using its extensive combat capabilities. If fighting has not yet broken out, the IBCT is threatening enough to act as a deterrent. During a major theater war, the IBCT can be attached to a division or corps to conduct operations throughout the mission spectrum, including defensive operations, offensive operations, flank protection and providing rear area security. The IBCT is also well suited for use as an operational reserve. Due to its extreme mobility and ability to deploy at high speed over long distances, the brigade can quickly react to a changing situation on the battlefield, allowing the concentration of large forces in a short time, or it can fill gaps in its own frontline. The IBCT's core operational capabilities rest upon the following pillars:

- The formation's excellent operational and tactical mobility achieved by the use of air-transportable wheeled 8x8 Stryker Interim Armored Vehicles (IAV).
- Enhanced situational awareness achieved by using the latest C4 technology and the integration of modern Information, Surveillance, Target Acquisition and Reconnaissance (ISTAR) technology that features joint interoperability and can be accessed by commanders at all levels down to the squad leader. By the use of EPLRS, SINCGARS, NTDR, WIN-T, SATCOM and GCCS-A, the following C4 systems are fully integrated: Maneuver Control System (MCS), Digital Topographic Support System (DTSS), All-Source Analysis System (ASAS), Tactical Airspace Integration System (TAIS), Advanced Field Artillery Tactical Data System (AFATDS), Forward Area Air Command and Control (FAADC2), Battle Command Sustainment Support System (BCS3), and the Force XXI Battle Command - Brigade and Below (FBCB2).
- A high dismount strength of some 2000 infantrymen for close combat in urban and complex terrain. A Heavy Brigade Combat Team can field just 760, while a Light Brigade Combat Team can field some 1060 infantrymen.
- Combined arms integration down to the company level - for example, each infantry company of an IBCT can field integral indirect fire assets and an anti-armor component. This results in the capacity to conduct combined arms dismounted combat operations down to the company level supported by direct and indirect fire support from organic weapon systems such as crew-served weapons, snipers, anti-armor weapons and mortars.

Air mobility

One of the key factors in SBCT doctrine is that Stryker IAV-equipped units can be deployed rapidly anywhere in the world. Certainly the fastest way to do so is by transport aircraft. Owing to its combat weight, a single Stryker IAV is operationally deployable in a C-130 Hercules transport aircraft. On the strategic side, a C-17 Globemaster III can airlift three Strykers, while a C-5B Galaxy can lift up to four Strykers. The first time Strykers and crews were tactically deployed by a C-130J Hercules was during Exercise "Millenium Challenge" in April 2002. During the exercise, ten Strykers were loaded into C-130J Hercules aircraft at the Southern California Logistics Airport near Victorville and then delivered to Bicycle Lake Landing Zone, a dirt landing strip at the National Training Center at Fort Irwin. After intensive trials, initial flight certification from the U.S. Air Force (USAF) was granted to the Stryker IAV in April 2003. This was despite the fact that, due to the width of the vehicle, the 14-inch safety aisle on all sides required by the USAF for granting loadmasters freedom of movement was not achieved. Depending on which Stryker version is transported in a C-130J, it might be that only part of its crew may fly in the same aircraft. In addition, multiple alterations are required to fit the vehicle into the aircraft. In the case of the M1126 Stryker, the following parts have to be removed: two smoke grenade launchers, all antennas, a left rear bracket that blocks egress over the top of the vehicle, the M151 RWS, and the third road wheel's bump-stop. During the aforementioned exercise, reassembly upon landing took the vehicle crews some 17 minutes. In order to deploy a whole Stryker IBCT with its 319 Strykers, 160 C-17 aircraft sorties are required.

Seven IBCTs for the U.S. Army

While two IBCTs were originally planned, funding for six SBCTs was finally approved by the Department of Defense (DoD) in December 2003. With the adoption of the name Stryker for the Interim Armored Vehicle in 2002, the name of the new brigade type was changed from Interim Brigade Combat Team (sometimes also called Medium Brigade) to Stryker Brigade Combat Team. In 2006, the DoD announced that an additional brigade would be funded, which would bring the total number of SBCTs in the army's future structure to seven. The seven brigades are as follows:

- **2nd Brigade, 2nd Infantry Division**, Fort Lewis, Washington. Conversion is scheduled to begin in 2007.
- **3rd Brigade, 2nd Infantry Division**, Fort Lewis, Washington. This was the first unit to convert to an SBCT. Conversion was conducted between July 2000 and April 2003. It operated in Iraq between November 2003 and November 2004. The brigade returned to Iraq in November 2006 for a 12-month deployment.
- **4th Brigade, 2nd Infantry Division**, Fort Lewis, Washington. This unit converted into an SBCT under the designation of 2nd Cavalry Regiment (Stryker) between March 2005 and February 2006. Re-flagging to 4th Brigade, 2nd Infantry Division, took place in June 2006. It is believed the brigade will deploy to Iraq in late 2007. The unit was the fourth brigade to become an SBCT.
- **1st Brigade, 25th Infantry Division**, Fort Wainwright, Alaska. This was the third brigade to convert into an SBCT under the designation 172nd Infantry Brigade between July 2004 and July 2005. It deployed to Iraq between October 2005 and November 2006. On its return to Alaska, the brigade was re-flagged to 1st Brigade, 25th Infantry Division.
- **2nd Brigade, 25th Infantry Division**, Schofield Barracks, Hawaii. This brigade was the fifth to convert into an SBCT. Conversion started in late 2005 and is scheduled for completion in November 2007.
- **2nd Stryker Cavalry Regiment**, Vilseck, Germany. This unit began converting into an SBCT as the 1st Brigade, 25th Infantry Brigade, at Fort Lewis, Washington, in April 2003. It was the second SBCT to be formed. The unit deployed to Iraq between October 2004 and 2005. Before moving to Germany, the brigade was re-flagged as 2nd SCR on 1 June 2006.
- **56th Brigade, 26th Infantry Division Pennsylvania Army National Guard**, Philadelphia. This brigade started converting from a heavy brigade into an SBCT in June 2005. Conversion is scheduled for completion by late 2007. The unit is the first and only Army National Guard SBCT.

SBCT organization

While it was originally planned to organize the 2nd Stryker Cavalry Regiment in a different way so it could maintain its mission as a reconnaissance asset of XVIII Airborne Corps, this idea was later dropped. As a result, all seven SBCTs are organized almost identically. Each SBCT numbers some 4000 troops and consists of the following assets: one Headquarters and Headquarters Company, three Infantry Battalions, one Reconnaissance Surveillance Target Acquisition (RSTA) Squadron, one Artillery Battalion, one Brigade Support Battalion, one Engineer Company, one Signal Company, one Military Intelligence Company, and one Anti-Armor Company. Since the first SBCT became operational, the structure of units under the command of the brigade has changed constantly, often resulting in discrepancies in the number of vehicles actually in service and what the latest MTOE states should be in service. One reason for this is that the M1128 Stryker Mobile Gun System entered service later then other Stryker models. Therefore, units supposed to be equipped with the M1128 Stryker MGS were equipped with the M1134 Stryker Anti-Tank Guided Missile vehicle as an interim solution. However, in some cases this was not done one for one and often a mix of M1134 Stryker ATGMs and M1126 Stryker ICVs were fielded instead. Another reason for the constant changes in structure is the involvement of SBCTs in Operation Iraq Freedom (OIF) since 2003. Lessons learned during operational deployments of this new type of brigade are constantly resulting in the adoption of new structures designed to be more effective. Therefore, the information on the unit structure given below should only be taken as an outline and it could soon become obsolete. In addition, only the number of Strykers (plus some other major equipment) is given. To list every single vehicle would be beyond the capacity of this book.

Infantry battalions

The major combat maneuver capability of the SBCT is provided by three Infantry Battalions, each some 700 troops strong. The battalions are divided into a Headquarters and Headquarters Company and three Rifle Companies. The HHC consist of the Battalion Command Section (2x M1130 Stryker CVs), the Battalion Staff, the Company HQ Section, the Communications Section, the Retransmission Section (2x M1130 Stryker CVs), the Medical Platoon (4x M1133 Stryker MEVs), the Fire Support Platoon (3x M1131 Stryker FSVs), the Sniper Squad, the Reconnaissance Platoon (4x M1127 Stryker RVs), the Mortar Platoon (4x M1129 Stryker MC-As or MC-Bs, each with a 120mm and a 81mm M252 mortar), and a USAF Augmentation Section (Tactical Air Control Party with 1x M1130 Stryker CV). The three Rifle Companies each consist of a Company HQ (2x M1126 Stryker ICVs), a Mortar Section (2x M1129 Stryker MC-As or MC-Bs, each with a 120mm and a 60mm mortar), a Mobile Gun System Platoon (3x M1128 Stryker MGSs), and three Rifle Platoons each with 44 soldiers. Each Rifle Platoon consists of a Platoon HQ, three Rifles Squads and a Weapons Squad, and it can field a total of four M1126 Stryker ICVs. The mission of the infantry during offensive operations is to close with the enemy by using fire and maneuver in order to destroy or capture him. In defense, the infantry repels an enemy assault by fire, in close combat or with a counterattack. The SBCT, and more particularly its infantry units, are capable of fighting in all types of terrain including urban areas.

Anti-Armor Company

The Anti-Armor Company provides accurate, long-range anti-armor fire support in order to enhance the lethality, survivability and maneuverability of the SBCT. The unit numbers some 50 troops and is divided into an HQ Section, a Medical Section, three Anti-Armor Platoons and a Fire Support Platoon. The HQ element can field two M1126 Stryker ICVs. Each of the Anti-Armor Platoons fields three M1134 Stryker ATGMs. The Fire Support Platoon is equipped with one M1131 Stryker FSV.

Engineer Company

The Engineer Company provides engineering support for the SBCT throughout the whole mission spectrum including defensive, offensive and stability operations. This includes mobility and counter-mobility maneuver support. In the area of force support, the unit assists the SBCT with survivability, general engineering and force protection support. The company numbers some 130 soldiers and is divided into a Company HQ, three Combat Mobility Platoons, and one Mobility Support Platoon. Each of the Combat Mobility Platoons fields one M1126 Stryker ICV and three M1132 Stryker ESVs. The M1132 Stryker ESV can either be fitted with a Surface Mine Plow, Lightweight Mine Roller, Angled Mine Plow or Straight Obstacle Blade. Also part of the platoon's equipment, are two M1120 HEMTT LHS trucks, two M58A4 Mine Clearing Line Charges and one M139 Volcano Mine Dispenser. The Mobility Support Platoon possesses plant and bridging equipment of the company. This includes six Deployable Universal Combat Earthmovers, six Interim High Mobility Engineer Excavators, and a Medium Girder Bridge loaded on M1120 HEMTT LHS trucks. In the future, the MGB will be replaced by the Rapidly-Emplaced Bridge System.

Artillery Battalion

The Artillery Battalion supports the SBCT with synchronized direct support artillery fire across the full spectrum of operations. On order, the unit can conduct area security operations in a designated Area of Operations (AOR), and it can be deployed rapidly. Also designated as the Fires Battalion, the Artillery Battalion numbers some 350 troops. The unit consists of a Headquarters and Support Battery, three Howitzer Batteries and a Target Acquisition Platoon. The main weapon system of artillery batteries is the 155mm M198 Towed Howitzer with a combat range of 22,400m with standard ammunition, and 30,000m with rocket-assisted ammunition. The guns are usually towed by M1083A1 MTV 6x6 trucks. Each howitzer battery can field four M198 howitzers. In the future, the unit will be equipped with the 155mm M777 Lightweight Howitzer, with six guns in each battery. The Target Acquisition Platoon fields AN/TPQ-36 and AN/TPQ-37 Firefinder Phased Array Artillery Locating Radars. The battalion has only one M1130 Stryker CV, which belongs to the Battalion Command Group.

Reconnaissance, Surveillance and Target Acquisition Squadron

The RSTA Squadron consists of the Squadron Headquarters and Headquarters Troop, three Reconnaissance Troops, and a Surveillance Troop. In total, the unit numbers some 450 troops. The Squadron Headquarters and Headquarters Troop consists of a Command Group (1x M1130 Stryker CV), a Squadron Staff (1x M1130 Stryker CV), a Troop HQ, a Medical Platoon (4x M1133 Stryker MEVs), a Fire Support Platoon (3x M1131 Stryker FSVs), and a USAF Augmentation Section (Tactical Air Control Party with 1x M1130 Stryker CV). Each of the three Reconnaissance Troops is some 95 soldiers strong and consists of the Troop HQ (1x M1126 Stryker ICV and 1x M1127 Stryker RV), three Reconnaissance Platoons (each equipped with 4x M1127 Stryker RVs) and a Mortar Section (2x M1129 Stryker MC-As or MC-Bs with a 120mm mortar). In the Surveillance Troop, ground-based RSTA sensors and UAVs are located. This troop consists of a Troop HQ, a UAV Platoon (1x Shadow 200 TUAV system with four RQ-7A Shadow 200 TUAVs), a Ground Sensor Platoon (3x AN/MLQ-40 ELINT Prophet Electronic Warfare and Signal Intelligence Systems, and 27x AN/GSR-8 Remotely Monitored Battlefield Sensor Systems II), and an NBC Reconnaissance Platoon (3x M1135 Stryker NBCRVs). Initially, the platoon was equipped with M93A1 Fox NBC Reconnaissance Systems. These have been replaced once the M1135 Stryker NBCRV started entering service.

The mission of the RSTA Squadron is to conduct reconnaissance, surveillance and target acquisition operations in order to provide the SBCT with a sharp picture of the situation on the battlefield. This includes target handover after positive identification to other units of the brigade, which can then neutralize it with weapons of the combined all-arms team. The RSTA Squadron is usually the first unit to deploy to an operational theater and the last to leave. Another task of the RSTA Squadron is to conduct security operations. The unit is able to monitor vast areas, and by so doing, it frees other brigade assets for operations. It can be assigned its own AOR or it can operate as a brigade reserve available to fill gaps.

Headquarters and Headquarters Company

The Headquarters and Headquarters Company is divided into a Headquarters Company and a Headquarters Section. The Headquarters Section includes the brigade commander and brigade staff. The brigade staff is the brain of the SBCT, and it assists the brigade commander and brigade executive officer with making and implementing decisions. Once a decision is made, the staff communicates it to subordinates, synchronizes and coordinates supporting actions, and supervises execution to ensure it is carried out according to the intent. The SBCT brigade staff is structured into the Personnel Staff Group (command sergeant major, chaplain and staff judge advocate), the Coordinating Staff Group (S1 Personnel Section, S2 Intelligence Section, S3 Operations and Training Section, S4 Logistics Section, S6 Signals Section), and the Special Staff Group (Brigade Surgeon Section, Fires and Effects Coordination Cell, Non-Lethal Effects Coordination Cell, Maneuver Support Coordination Cell, USAF Tactical Air Control Party, and Air Defense and Airspace Management Coordination Cell).

The Headquarters Company provides administrative and logistical support to each element of the Headquarters Section. The company provides personnel for the brigade staff, possesses equipment for setting up different brigade command posts (CPs) and is responsible for moving these CPs around the battlefield. In addition, the Headquarters Company provides support and security for the CPs. The SBCT usually maintains a Main Command Post and a forward-deployed Tactical Command Post. In total, the Headquarters and Headquarters Company consists of 130 troops. Among the company's large fleet of wheeled vehicles are three M1130 Stryker CVs (one each for the S3 Section, brigade commander and Tactical Air Control Party of the USAF).

Brigade Support Battalion

The Brigade Support Battalion combines all logistic assets required by the SBCT to maintain its operability over a longer period of time. Therefore, the unit is key to the SBCT's capability to deploy and operate independently without the support of additional logistic assets. The BSB can be deployed by land, sea or air to any operational theater. Once deployed, the BSB conducts reception, staging, onward movement and integration. The BSB establishes and secures a Brigade Support Area and conducts continuous logistic operations. These include the storing, handling and forward movement of supplies of all classes. Also included are vehicle maintenance and medical care for all SBCT assets and attached elements. The BSB is structured into a Headquarters and Headquarters Company, a Distribution Company, a Forward Maintenance Company and a Brigade Support Medical Company. The BSB numbers some 620 troops. The unit's major equipment includes six containerized kitchens, 50x M1120 HEMTT LHS cargo trucks, 44x M1076 PLS trailers, 14x M978 HEMTT fuel trucks, 11x M984A1 HEMTT recovery trucks and 15x M997A1 HMMWV Maxi ambulances. According to the latest MTOE, the unit's vehicle inventory does not include any Stryker IAV variants, though the 25th BSB of the 1st Brigade, 25th Infantry Division, fielded two M1133 Stryker MEVs during operations in Iraq.

Signal Company

The Signal Company of the SBCT provides the brigade with C2 operations support. The company installs, operates, and maintains the SBCT-wide area network. It also configures and manages the tactical internet and CP-to-CP data networks. The Network Operations Section establishes a Network Operations and Security Center (NOSC) at the SBCT main CP and at the tactical CP. The company's Nodal Platoon establishes an alternate NOSC at the SBCT main CP. The Signal Company is responsible for connecting the SBCT to the global information grid. The Signal Company numbers some 60 troops and is divided into a Command Section, a Signal Support Platoon, a Brigade Signal Company Nodal Platoon, and a TOC Nodal Platoon. The unit does not have any Stryker IAVs.

Military Intelligence Company

The Military Intelligence Company numbers some 60 troops and is structured into a Company HQ, an ISR (Intelligence, Surveillance and Reconnaissance) Integration Platoon, an ISR Analysis Platoon, and a Tactical Human Intelligence Platoon. The MI Company, in conjunction with the RSTA Squadron, provides the SBCT with integrated, real-time intelligence. Additionally, the unit maintains links to theater, joint and national databases for analysis and information production purposes. Major equipment of the unit includes the HMMWV-based Joint Surveillance Target Attack Radar System Common Ground Station (JSTARS CGS), which processes radar information, SIGINT reports, UAV video and telemetry data, and secondary imagery. With the HMMWV-based Trojan Spirit Lightweight Integrated Telecommunications Equipment AN/TSQ-190(V2), the MI Company is connected to the Joint Worldwide Intelligence Communication System and the Secret Internet Protocol Router Network (SIPRNET). This allows the unit near real-time access to echelons above the brigade level and to national agency information networks. This unit does not have any Stryker IAVs in its inventory.

The Stryker Interim Armored Vehicle

The search for and development of the Stryker IAV started after U.S. Army General Eric Shinseki outlined the transformation of the army to the "Objective Force" back in 1999. Originally it was intended to begin equipping the first units with the new vehicle as early as March 2001. Therefore, the U.S. Army immediately started a swift search for a suitable vehicle. The new vehicle, originally called the Medium Armored Vehicle (MAV), later became known as the Stryker Interim Armored Vehicle. It did not replace any existing army vehicle, since as a medium vehicle it was intended to combine capabilities required by both light and heavy forces alike.

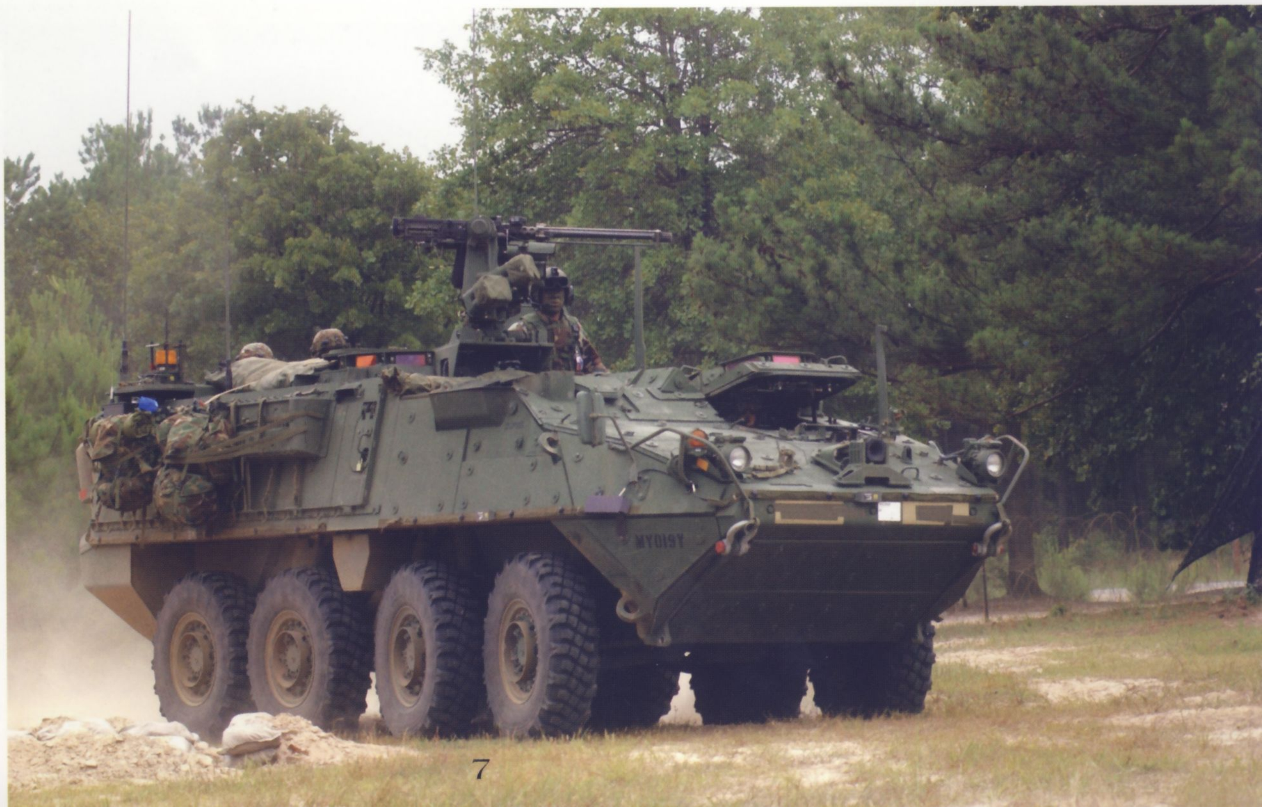
Platform Performance Demonstration

Because of limited funds and an immediate operational requirement, it was decided the new MAV should be an off-the-shelf item already available on the military vehicle market. The U.S. Army's Tank Automotive and Armament Command (TACOM) invited interested manufacturers to take part in a Platform Performance Demonstration (PPD) at Fort Knox in December 1999 and January 2000. The aim of the PPD was to conduct a market survey and capability assessment in which ten manufacturers from seven countries took part. The manufacturers were General Dynamics Land Systems (GDLS) (USA), MOWAG GmbH (Switzerland), General Motors Defence (Canada), Rheinmetall Landsysteme GmbH (Germany), AM General (USA), Cadillac Gage Textron (USA), United Defense LP (USA), GIAT Industries (France), Singapore Technologies Kinetics (Singapore), and FNSS Savunma Sistemleri AS (Turkey). Among the 33 vehicles demonstrated were tracked and wheeled models. The tracked vehicles included the Bionix IFV, M8 Armored Gun System, Medium Tactical Vehicle Light (MTVL - a stretched version of the M113), XM1108 Universal Carrier (based on the M2/M3 Bradley chassis), Armored Combat Vehicle (M113-based IFV), and two M113A3 variants (M1068 Command Post Vehicle and M1064A3 120mm Mortar Carrier). The number of wheeled participants by far outnumbered tracked ones, and they included the Pandur 6x6 (IFV with 25mm and 30mm cannon, Ambulance and APC), Piranha III 8x8, LAV III 8x8 (IFV, IFV with TOW, turreted mortar, and 105mm Low Profile Turret), TPz1 Fuchs 6x6 APC, VAB 6x6 APC, Dragoon 4x4 (IFV, APC and Command Post versions), Cobra 4x4 reconnaissance vehicle, LAV-300 Mk. II IFV, and LAV-600 Armored Gun System. While the PPD was still underway, TACOM issued a Draft Request for Proposal (DAAE07-00-R-M032) to vehicle manufacturers on 30 December 1999. In this document, five key requirements for the MAV were outlined:

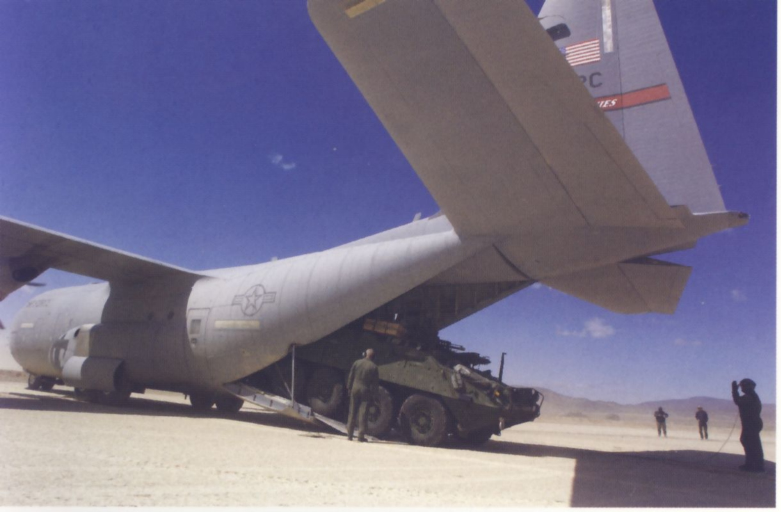
- Air transportable and capable of Roll-on/Roll-off from a C-130 aircraft in a combat-ready configuration within USAF peacetime security constraints. This includes full combat load plan requirements, soldiers and their gear, classes of supply, and medical and maintenance equipment.
- Operate, employ weapon systems, and maneuver 24 hours per day including night blackout, inclement weather and other periods of limited visibility.
- Provide integral frontal, side and rear protection from 7.62mm armor piercing rounds fired at a range of 10m.
- Provide protection against 152mm HE artillery round overhead bursts at a range of 30m and above
- Accelerate from 0-20mph on hard surfaces in eight seconds or less.

Operational Requirement Document

In February 2000, the U.S. Army (partly based on the PPD and operational requirements of the IBCT) released the final Operational Requirement Document (ORD) for the IAV. The ORD called for an air-transportable family of vehicles that could be rapidly deployed anywhere in the world in a combat-ready configuration. The family could be either wheeled or tracked, but should be centered on an Infantry Carrier Vehicle able to carry an infantry squad with all their personal equipment. Other required variants included a mortar carrier, engineer squad vehicle, reconnaissance vehicle, antitank guided missile platform, fire support vehicle, command post vehicle, ambulance, and an NBC reconnaissance vehicle. In the ORD it was stated that wherever possible these variants would be built by fitting non-developmental items to the ICV. However, the ORD stated that for a Mobile Gun System and a 155mm self-propelled howitzer, it might be likely that special variants have to be built. Another key ORD requirement was that the new family of vehicles must be capable of hosting and effectively integrating existing C2, reconnaissance, communication, intelligence and surveillance systems. In February 2000, General Motors Defence of Canada and GDLS of the USA announced the formation of a cooperative joint venture called GM GDLS Defense Group in order to actively offer the LAV III 8x8 to the IBCT program. Both companies had cooperated before, for example in pursuit of the Canadian Forces Armored Combat Vehicle Program in 1997. In addition to a full family of vehicles, the GM GDLS Defense Group offered the U.S. Army necessary product improvements and service support throughout the service life of these vehicles.



Deliveries of the first LAV III IAVs to the U.S. Army began from General Motors' London, Ontario, plant in March 2002, and General Dynamics' Anniston, Alabama, facility in April 2002. Most of the first Stryker IAVs were assigned to the 3rd Brigade, 2nd Infantry Division. This unit became the first operational SBCT. Here, one of the brigade's M1126 Stryker ICVs can be seen during training in the USA. (DoD)



One of the key factors in SBCT doctrine is that Stryker IAV-equipped units can be deployed rapidly anywhere in the world. Certainly the fastest way to do so is by transport aircraft. Because of its combat weight, a single Stryker IAV is operationally deployable in a C-130 Hercules transport aircraft. (DoD)

Canadian LAV III for evaluation

In early 2000, following the PPD and the issuing of the ORD, the Canadian Armed Forces agreed to loan 32 LAV IIIs to the USA for evaluation purposes. The first eight LAV IIIs arrived on 29 February 2000 while the last examples were handed over in August. Simultaneously, 16 Centauro 8x8 armored reconnaissance vehicles armed with a 105mm tank gun were loaned from Italy. The army kept these vehicles till January 2002, being mainly used in the evaluation of IBCT doctrine. To a certain extent, they were used in troop trials with the aim of finding the right vehicle for the U.S. Army's future medium force.

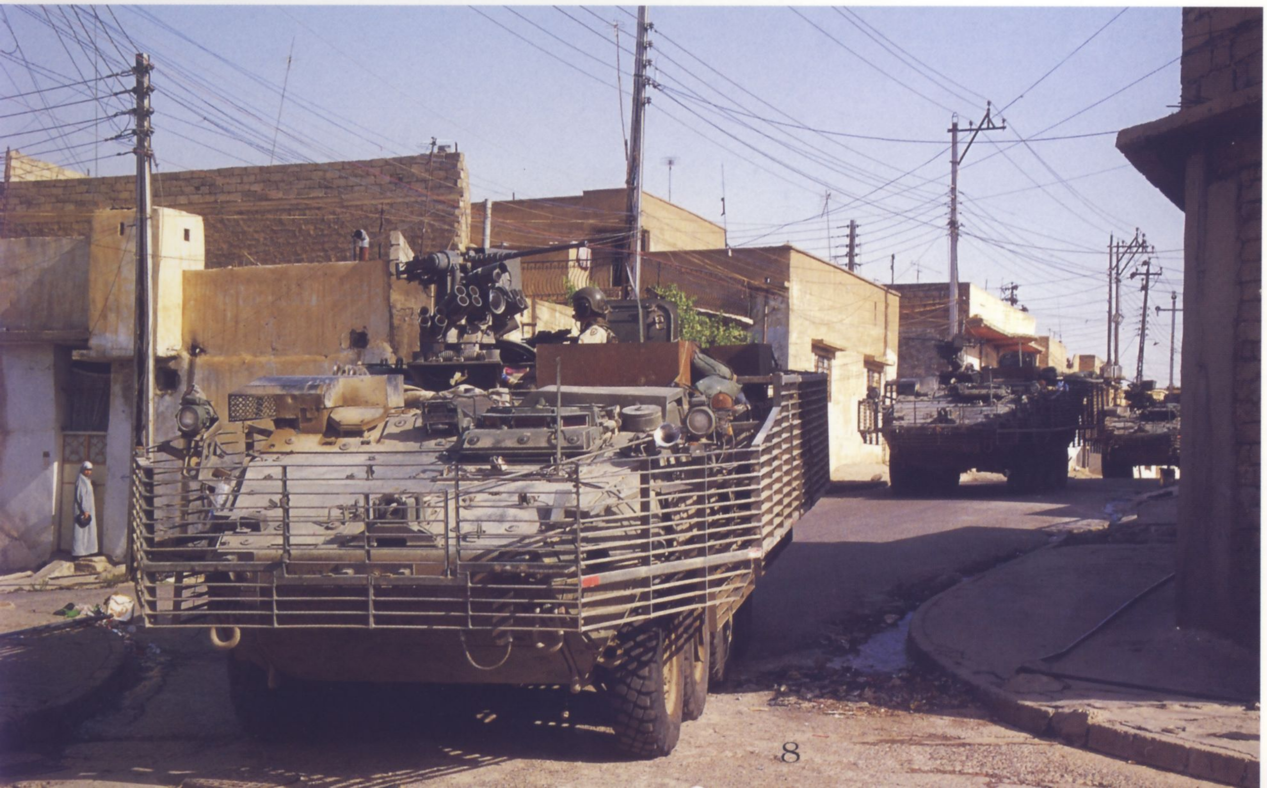
TACOM orders LAV III

In November 2000, the U.S. Army Defense, Operational Test and Evaluation Directorate approved the initial Interim Armored Vehicle Test and Evaluation Master Plan. On 16 November 2000, TACOM awarded the GM GDLS Defense Group a six-year requirements contract worth an estimated total value of $4 billion to equip its new IBCTs with 2131 LAV III-based vehicles. The contract was of the split type that outlined several delivery orders to be exercised annually according to available funds. The initial delivery order comprised research, development, test and evaluation of the IAV worth $61.7 million. Also included was the order of 366 production vehicles in eight different variants worth $578.4 million. The decision to acquire the wheeled LAV III as the IAV was mainly based on its performance during the PPD, the fact that the vehicle already fulfilled most ORD requirements, the vehicle's growth potential, and the proposal submitted by GM GDLS Defense Group. Apart from the PPD, there was no real competition conducted by the DoD, so it was no wonder that United Defense LP officially protested against the decision shortly after TACOM placed its order. United Defense LP, who was offering a tracked solution for the IAV, claimed the selection was inconsistent with the evaluation scheme and was otherwise unreasonable. Due to a stop work order imposed by the General Accounting Office, work on the IAV program was then halted. It did not commence until April 2001 when the GAO rejected the protest after conducting an evaluation.

In its final report, the GOA stated the decision to opt for the LAV III was reasonable as the significant performance and supportability advantages of the LAV III and MGS outweighed United Defense LP's schedule and price/cost advantages of the MTVL and M8 Armored Gun System. Originally the M8 was designed to replace the M551 Sheridan AR/AAV in the inventory of the 82nd Airborne Division. In the future the M1128 Stryker Mobile Gun System will fill this gap. With the stop work order lifted, the IAV program immediately recommenced. While the MGS was not yet ready for series production, the ICV (in eight variants) was on schedule and initial low-rate production started in mid-2001.

Named after Medal of Honor recipients

Deliveries of the first LAV III IAVs to the U.S. Army began from GM's plant in London, Ontario, in March 2002 and GDLS's Anniston, Alabama, facility in April 2002. On 27 February 2002, the army officially named the IAV "Stryker" in a ceremony at Fort Lauderdale, Florida. The name originated from two Medal of Honor recipients. These are Pfc Stuart S. Stryker who served in WWII, and Spc Robert F. Stryker who served in Vietnam. Specialist Robert Stryker, who served with the 1st Infantry Division, was posthumously awarded the Medal of Honor for saving the lives of fellow soldiers near Loc Ninh, Vietnam. Private First Class Stuart Stryker, who served with 513th Parachute Infantry, posthumously received the Medal of Honor for leading an attack near Wesel, Germany, that captured more than 200 enemy soldiers and freed three American pilots. By giving the IAV the name of a private and a specialist, the Stryker became the first U.S. Army vehicle not named after a general to enter service. In the past only names of generals were given to armored vehicles (for example, that of General Creighton Williams Abrams or that of General Omar Nelson Bradley).



The Stryker IAV had its combat debut in Iraq in November 2003. Since then, one SBCT has constantly served in OIF. All Strykers deployed in Iraq are fitted with slat armor to protect them from deadly RPG rounds. The pictured vehicle is an M1126 Stryker ICV belonging to the 1st Brigade, 25th Infantry Division. (Carl Schulze)

Orders begin to flow

The army ordered Stryker IAVs for its second SBCT in 2002, while orders for vehicles of the third SBCT were issued in March 2003. Between March and September 2003, the Stryker IAV Initial Operational Test and Evaluation took place at Fort Knox, Kentucky. Two companies equipped with Stryker IAVs, as well as brigade-level antitank, engineer and reconnaissance assets, took part in the IOT&E. All Stryker IAV variants except for the Mobile Gun System and NBC Reconnaissance Vehicle participated. In the case of the Mortar Carrier, only the version with a dismounted mortar was tested. The MGS, NBCRV and MC-B went through their IOT&E on later occasions. The first order for vehicles of the fourth SBCT was placed on 4 March 2004. This order was for 212 vehicles. Another 116 vehicles were ordered on 23 June 2004. In October the same year, the DoD approved low-rate initial production for the M1128 Stryker MGS and M1135 Stryker NBCRV. This was followed by an order for another 95 Stryker IAVs on 2 December 2004. The order was valued at $206 million and was for 14x MGS, 17x NBCRV, 25x IAV, and 39x MC vehicles.

1000th Stryker IAV roll-out

On 12 January 2005, the 1000th series-production Stryker IAV rolled off the production line at Anniston Army Depot, Alabama. Two-thirds of all Stryker IAVs are built at Anniston while the remainder is built in London, Canada. The first 1000 vehicles included the following models: a mix of 625x M1126 Stryker IAV and M1127 Stryker RV, 129x M1129 Stryker MC, 55x M1130 Stryker CV, 53x M1131 Stryker FSV, 42x M1132 Stryker ESV, 60x M1133 Stryker MEV and 36x M1134 Stryker ATGM. Of these 1000 vehicles, some 800 had already been fielded in the army's first three SBCTs. Back in November 2003, 311 Stryker IAVs (in eight different variants) were deployed to Iraq, and during their 14-month service they achieved an operational availability of 97%. In February 2005, the U.S. Army began ordering vehicles for the fifth SBCT. This order had a value of $582 million and comprised 423 vehicles. The TACOM Life Cycle Management Command ordered an additional 99 Stryker IAVs for $138 million on 18 April 2005. By late 2005, 300+ Stryker IAVs used in Iraq over a period of two years were replaced by new vehicles. Since late 2003, these vehicles had been first used for a year by the 3rd Brigade, 2nd Infantry Division, and then handed over to the 1st Brigade, 25th Infantry Division. The vehicles had been used constantly in extreme climatic conditions, traveling a total of more then six million miles and exposed to daily hostile fire. These facts ultimately demanded an overhaul. Therefore, the TACOM Life Cycle Management Command ordered the restoration of 265 vehicles to pre-combat, like-new conditions in November 2005 in a $69 million contract. In December 2005, the first two of 17 Stryker NBCRV low-rate initial production vehicles were handed over. The Stryker MGS also entered LRIP the same month.

Battle damage repair in Qatar

Since 2003, the situation in Iraq has become more and more hostile with insurgent attacks conducted on a daily basis. Attacks using roadside IEDs and VBIEDs took their toll on American forces. In addition to the loss of life, these attacks resulted in countless damaged vehicles. Therefore, in February 2006 the TACOM Life Cycle Management Command awarded GDLS an $18 million contract to repair damaged Strykers. This work brings damaged vehicles back to pre-combat, like-new conditions, and is carried out at a facility in Qatar. After the army gained funds to raise a seventh SBCT, it placed three orders for additional Stryker IAVs in 2006. This orders extended the number of vehicles required in the original contract of November 2000. In April 2006, 306 Stryker IAVs worth $463.9 million were ordered. The delivery of these vehicles is planned between April 2007 and March 2008. Another batch of 103 Stryker IAVs with a value of $127 million was ordered in July 2006. The latest order for Stryker IAVs was placed in July 2006. It covers 103 vehicles with a value of $127 million. Stryker IAV production is thus expected to run till October 2008 at least. By October 2006, the U.S. Army had ordered 2691 Stryker IAVs. Of these, some 1780 had been delivered at the time of writing.

Stryker Interim Armored Vehicle family

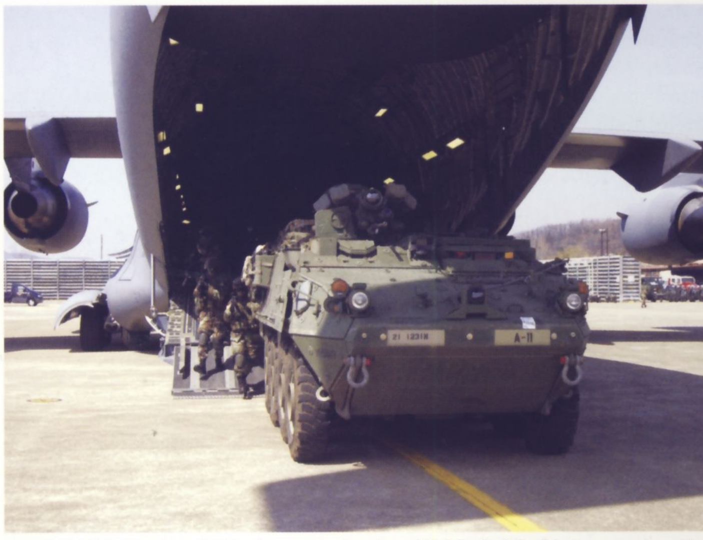
The two basic variants of the Stryker Interim Armored Vehicle are the Stryker IAV Infantry Carrier Vehicle and the Stryker IAV Mobile Gun System. The Stryker ICV is the base model for eight additional variants of the Stryker. This brings the total number of Stryker variants to ten:

- M1126 Stryker Infantry Carrier Vehicle (ICV)
- M1127 Stryker Reconnaissance Vehicle (RV)
- M1128 Stryker Mobile Gun System (MGS)
- M1129 Stryker Mortar Carrier (MC-A with dismounted mortar and MC-B with recoiling mortar system)
- M1130 Stryker Command Vehicle (CV)
- M1131 Stryker Fire Support Vehicle (FSV)
- M1132 Stryker Engineer Squad Vehicle (ESV)
- M1133 Stryker Medical Evacuation Vehicle (MEV)
- M1134 Stryker Anti-Tank Guided Missile vehicle (ATGM)
- M1135 Stryker NBC Reconnaissance Vehicle (NBCRV)

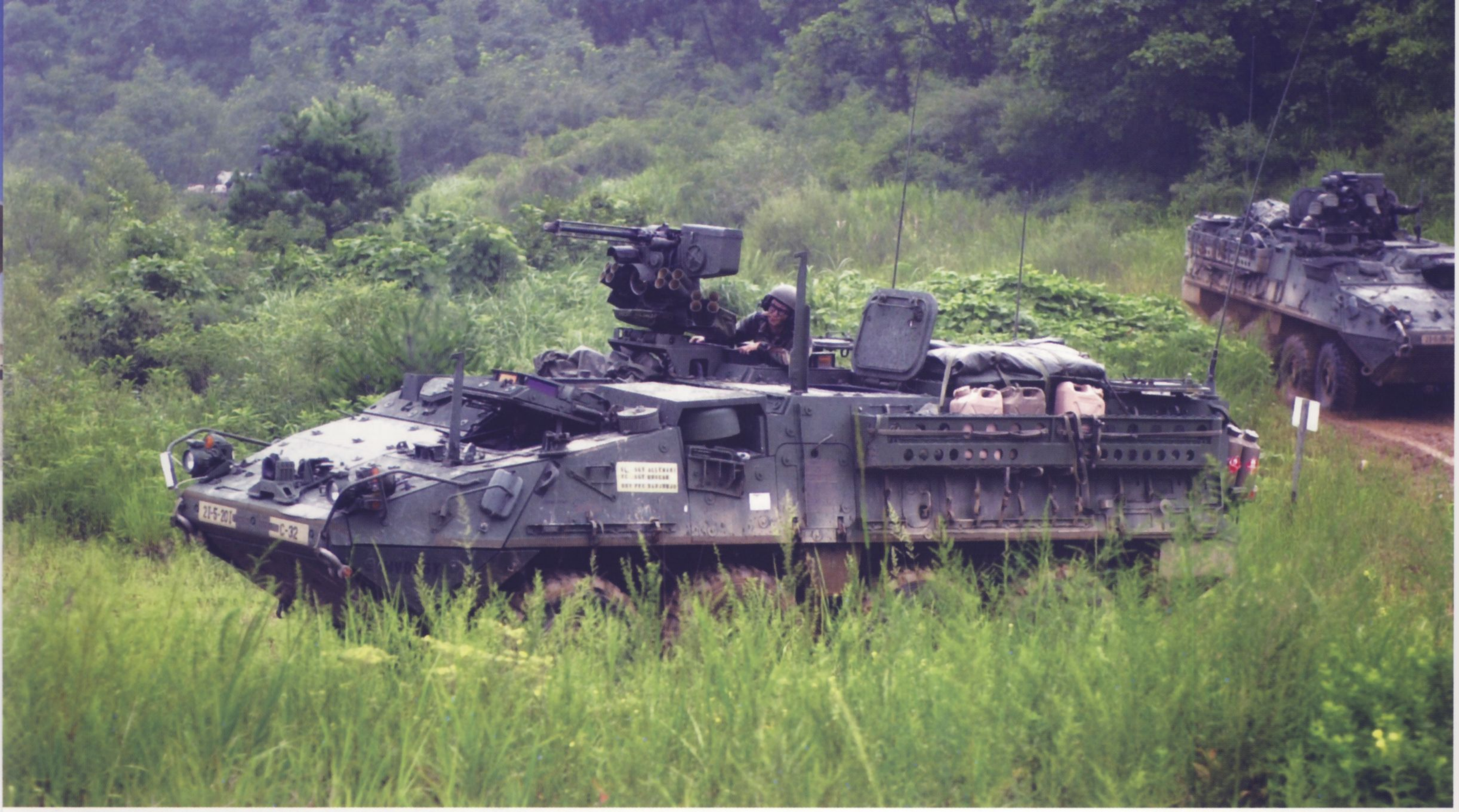
A tour of the M1126 Stryker Infantry Carrier Vehicle

The Stryker IAV family consists of ten variants that, except for armament and mission-specific equipment, are technically identical and feature the same mechanical components. Most Strykers are M1126 Stryker Infantry Carrier Vehicles. The M1126 Stryker ICV is one of two basic variants of the Stryker IAV family. We will now take a closer look at the M1126 Stryker ICV, and at the same time, brief you on the Stryker's technology. The M1126 Stryker ICV is a wheeled APC that, in addition to two crewmen, transports a nine-man infantry squad in its 11m? rear compartment. The vehicle is the prime weapon system of the SBCT, which fields a total of 127 M1126 Stryker ICVs. Like all Strykers, the M1126 is a fulltime four-wheel drive wheeled armored vehicle with selective eight-wheel drive. It has a combat weight of 18,300kg and a curb weight of 15,926kg. The hull of the M1126 Stryker ICV is made of 160 High Hardness steel body panels electrically welded together.

The driver is seated in a modern compartment in the front left of the hull. He reaches his position through a large single-piece hatch above the driver's seat that opens vertically. The hatch features a combat lock and cannot be opened from outside when it is in operation. In emergencies or while under enemy fire, access to the driver's compartment is also possible through a narrow tunnel from the rear of the vehicle. The driver's seat is ergonomically designed - it can be adjusted in height and is fitted with a four-point seatbelt manufactured by AMSafe Incorporated. For driving under armor protection in the daytime, the driver's hatch features three



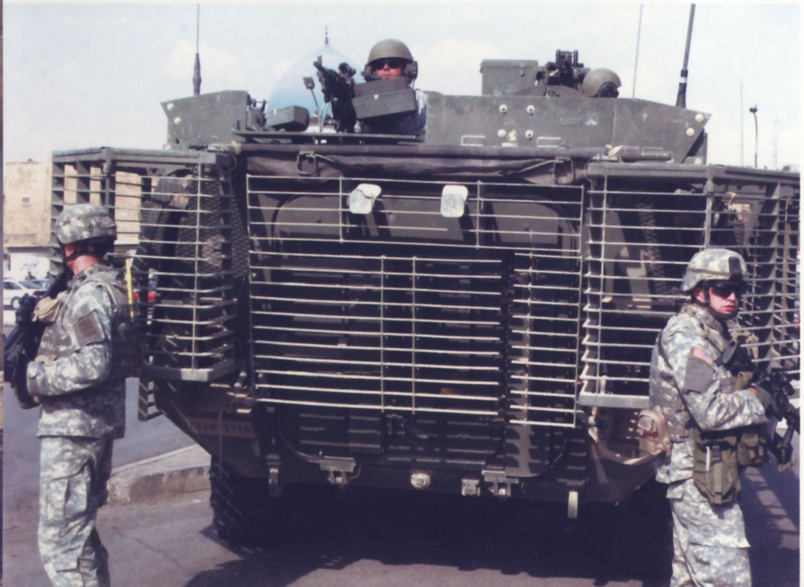
An M1126 Stryker ICV drives out of a USAF C-17 Globemaster III at Daegu Air Base, Republic of Korea, in March 2005. Up to three Stryker IAVs of any kind can be airlifted by a single C-17. The picture was taken during the annual "Foal Eagle" exercise. The vehicle belongs to the 1st Battalion, 23rd Infantry Regiment. (Petty Officer 1st Class James Christopher, U.S. Navy)



M1126 Stryker ICVs speed out of a tree line towards defensive positions. The picture was taken during a capability demonstration held at the Rodriguez Range Complex in the Republic of Korea in August 2005. Note the open squad leader's hatch of the first vehicle. Visible below the wire cutter in front of the hatch is the rectangular emergency escape hatch situated in the vehicle's left side. (Sgt Lisa Jendry, U.S. Army)

M17E4 periscopes. In front of the driver's seat, above and behind the steering wheel, the flat-panel display and control module of the Raytheon AN/VAS-5 Driver Vision Enhancer is situated. The DVE is a passive, uncooled thermal imaging system used on several U.S. vehicles to allow continuous vehicle operations by day or night in the presence of natural and manmade obscurants such as smoke, fog and dust. In addition to the flat-panel display and control module, the DVE consists of a sensor module mounted on the hull to the right of the driver's hatch. The sensor module contains a second-generation thermal imager providing a standard analog video signal. The image captured by the DVE can be transmitted to other displays inside the vehicle, for example on the squad leader's Video Display Terminal (VDT) in the rear compartment.

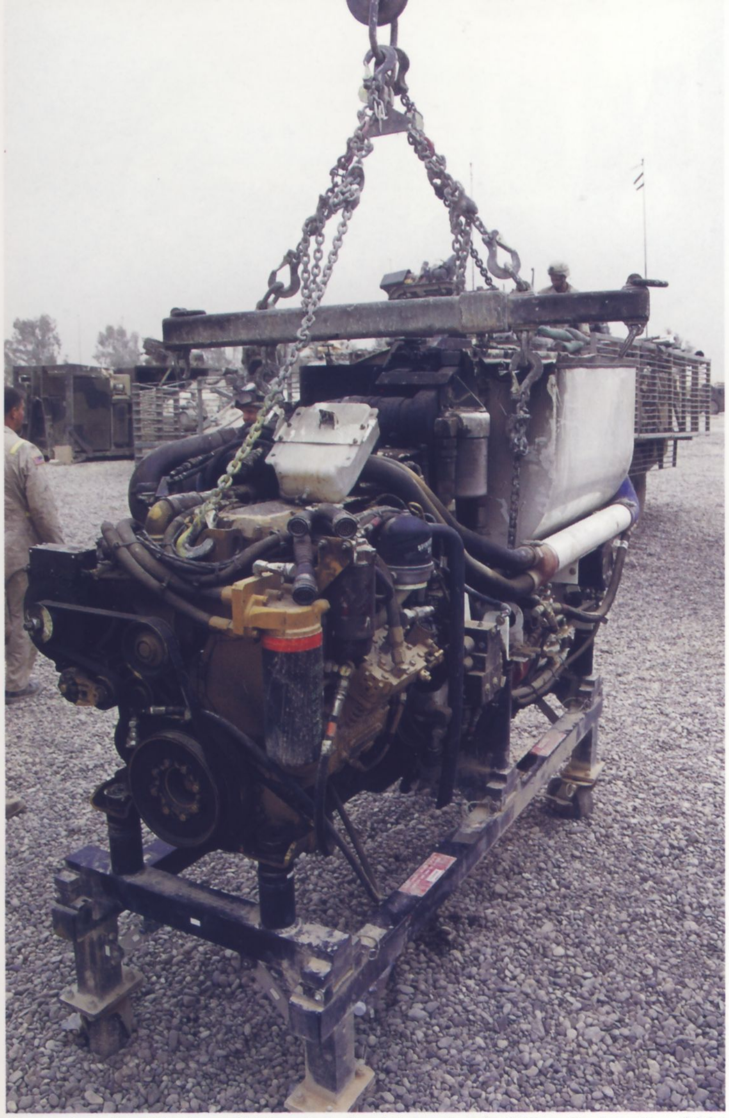
To the left of the driver, an instrument panel is situated containing the speedometer, tachometer, hour meter, fuel and engine pressure gauges, controls for the Automatic Fire Extinguishing System (AFES), climate control module, engine control panel, annunciator panel for the electrical system, light control module, and the control panel for the Central Tire Inflation System (CTIS). The driver can adjust tire pressure with the CTIS controls, even while on the move. Four settings are available: highway/hard surface (81psi), cross-country (47psi), snow/mud/sand (22psi) and emergency pressure (18psi). Controls for the vehicle's height management system are located to the left below the steering wheel. Foot pedals are used for braking and accelerating. To the right of the driver's seat are situated the gear range selector for the automatic transmission and the radio intercom box for the driver. The driver can reach the engine for inspection and maintenance purposes via the engine access panels on the right.



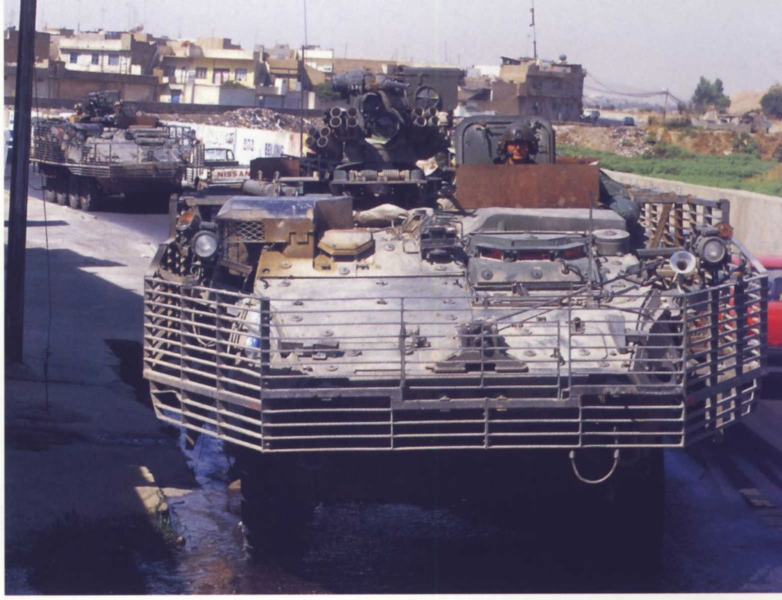
Engine, drive train, suspension, brakes and steering

In the front right of the hull is the vehicle's engine compartment. Here the power pack is mounted with the transmission in front and the engine behind. On the right side of the engine, space for an air-conditioning system is available. Initial Stryker production vehicles were not fitted with an air-conditioning unit (ACU), but later production vehicle featured an ACU due to lessons learned during OIF. The Stryker is powered by a 7.2-liter Caterpillar 3126 I6 exhaust-turbocharged, water-cooled, six-cylinder JP8/diesel engine. It has a Hydraulically-actuated Electronically-controlled Unit Injector (HEUI). The engine has an output of 350hp at 2500rpm, and is the same model used in Family of Medium Tactical Vehicle (FMTV) 5-ton trucks. The engine allows the vehicle to reach a top speed of 101km/h, and to conduct a 50m dash in nine seconds. In first gear the vehicle can be driven at a creeping speed of 2.5km/h. With the contents of the two 100-liter fuel tanks situated outside the armored hull on both sides under the sponson, a cruising range of 450km at a speed of 64km/h can be achieved. Engine power is transmitted through an Allison MD 3066P electronically-controlled automatic transmission (six forward and one reverse gears) and a two-speed transfer case (high range for road movement and low range for cross-country movement). Among other parts, the power train consists of four automotive differentials that can be locked manually.

Here troops from the 1st Battalion, 17th Infantry Regiment, 172nd SBCT, patrol a dangerous neighborhood in Mosul in September 2005. Their M1126 Stryker ICV is fitted with manufacturer's blast shields around the hatches of the rear compartment. The armored plates of the blast shields protect troops against splinters and blast effects of IEDs. They can be folded down if required. (Spc Jeffery Sandstrum, U.S. Army)



Powering the Stryker IAV family of vehicles is a 7.2-litre Caterpillar 3126 I6 six-cylinder turbocharged JP8/diesel engine that develops 350hp. Rather than diesel, the U.S. Army uses JP8 as fuel for its tactical vehicle fleet. JP8 is a kerosene-based fuel also used in the gas turbine engines of the M1 Abrams MBT. (Carl Schulze)

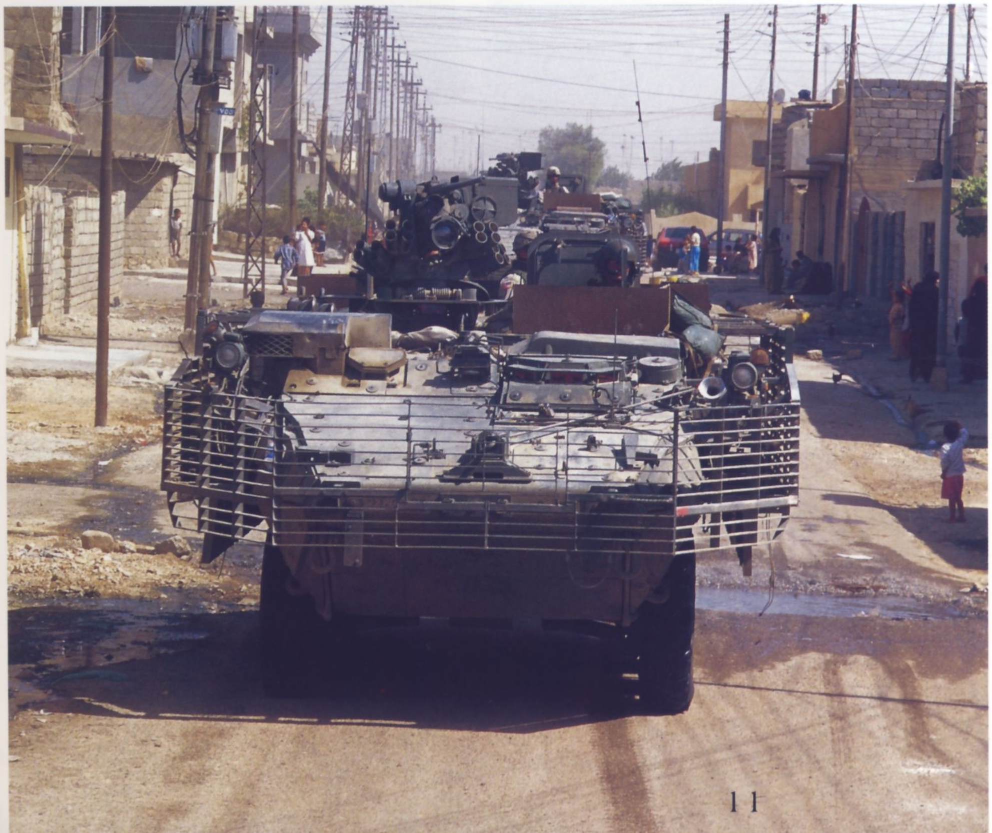


A patrol consisting of M1126 Stryker ICVs of the 3rd Battalion, 21st Infantry Regiment, moves along the Khosar River in Mosul. Note the unit-level blast shields made of HARDOX 400 steel in front of the commander's hatch. Adding armor plates to the Stryker IAV became necessary due to the heavy losses Stryker crews suffered when riding around in open hatches. Most of the injured or killed soldiers were victims of small-arms fire in ambushes or were hit by splinters from IEDs. (Carl Schulze)

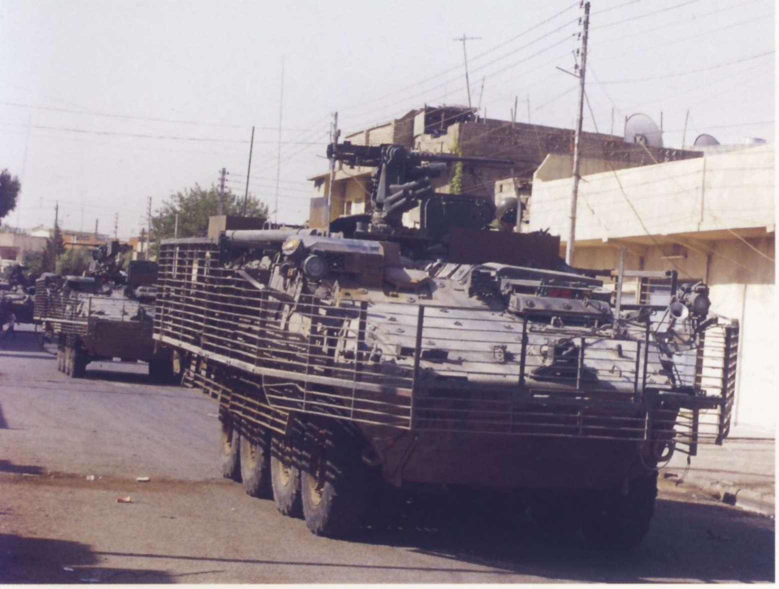
The suspension of the eight-wheeled vehicle is of an independent hydropneumatic type, and it contains a Height Management System (HMS). The transfer of nitrogen to and from the HMS allows the height to be adjusted. The gas is stored inside a tank below the tunnel connecting the driver's and crew's compartments. The suspension system features eight independent hydropneumatic (hydrop) suspension fittings that provide improved vehicle stability when traveling on all types of terrain. The wheels have a clearance of 510mm. Negotiating gradients of up to 60%, side slopes of up to 30%, steps up to a height of 600mm, and trenches 2000mm wide, is no problem for the Stryker. Hutchinson 20x8.5 inch rims are fitted with Michelin XML 12.00 R20 steel-belted tires and Hutchinson run-flat liners that allow vehicle mobility for at least 8km with all tires flat. The CTIS, manufactured by the Eaton/Dana Corporation, raises or decreases tire pressure depending on the terrain, or a punctured tire can be kept operational. While the Piranha III can be amphibious, the Stryker IAV is not. However, it can ford water obstacles up to 1300mm deep. The braking system of the Stryker consists of dual-circuit hydraulically-compressed air-assisted power brakes on all wheels and features ABS on the three rear axles. A pressure protection valve guards against brake failure resulting from air pressure loss in the system. The power-assisted steering system of the Stryker IAV is manufactured by TRW and features two steering gearboxes. With the two front axles being steered, the vehicle has a turning radius of 16m.

Commander's station and C4ISR architecture

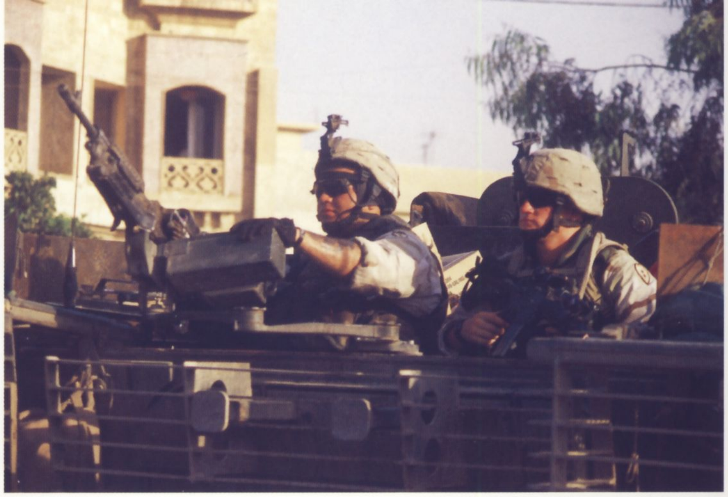
Situated behind the engine compartment to the right of the vehicle is the commander's station. A slightly raised circular single-piece hatch is situated in the roof above the commander's seat. Around the hatch are seven M45



M1126 Stryker ICVs of the 3rd Battalion, 21st Infantry Regiment, patrol in the east of Mosul in August 2005. Visible is the Kongsberg M151 RWS that can be fitted with either a .50-cal M2 MG or a 40mm Mk.19 MOD3 automatic grenade launcher. (Carl Schulze)



The M1126 Stryker Infantry Carrier is the prime combat vehicle of the IBCT, which fills the gap between light and heavy forces, as well as the gap between early-entry and follow-on forces. Here, M1126 Stryker ICVs of the 3rd Battalion, 21st Infantry Regiment, can be seen on patrol in Mosul, northern Iraq, in August 2005. (Carl Schulze)



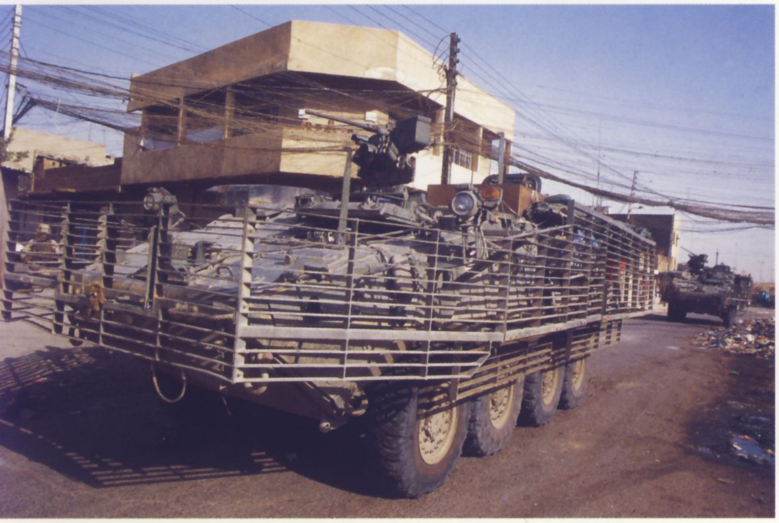
Soldiers of C Company "Tigers", 3rd Battalion, 21st Infantry Regiment, stand in the open hatches of the rear compartment of an M1126 Stryker ICV. The soldier on the left is manning a modified crew-served weapon mount in which a 7.62mm M240B is affixed. The picture was taken on a patrol in east Mosul. (Carl Schulze)

periscopes that provide a 360° view. Mounted on the roof in front of the commander's hatch is the M151 Protector Remote Weapon Station (RWS). In front of the commander's seat, which also features a four-point seatbelt, is the black and white monitor of the RWS Fire Control Unit (FCU). This monitor displays images captured by sensors of the RWS and the DVE. To the left are the commander's FBCB2 and EPLRS. Below the RWS FCU is the commander's intercom box. To his right are the RWS control grip, AN/PSN-11 PLGR (or its more modern replacement, the DAGR), AN/VDR-2 radiacmeter, and parts of the fire suppression system.

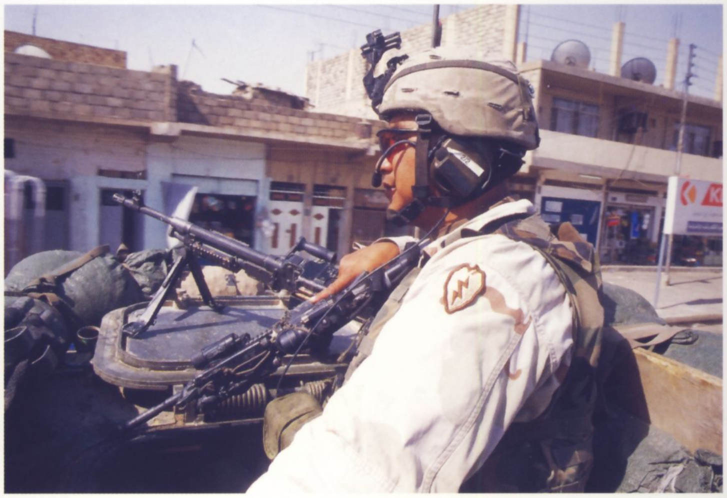
Behind the commander's station along the right of the hull is a rack where most parts of the state-of-the-art C4ISR (Command, Control, Communication, Computer, Intelligence Surveillance and Reconnaissance) architecture are mounted. The rack contains two ASIP radios (AN/VRC-88F and AN/VRC-91F that replaced the original SINCGARS), FBCB2 CPU, Raytheon AN/VSQ-2 (V) 1 EPLRS unit, Embedded Training Module (ETM), communications power distribution box, and an Ethernet hub. The C4ISR architecture of the Stryker integrates the FBCB2 Blue Force Tracker digital command and communication system with the radios of the vehicle, the sensors of the Protector M151 RWS, VDT, vehicle diagnostic system, ETM, Interactive Electronic Technical Manual (IETM), AN/VSQ-2 (V) 1 Enhanced Position Location Reporting System (EPLRS), and AN/PSN-11 Precise Lightweight GPS Receiver (or its replacement, the DAGR). The C4ISR architecture allows the vehicle crew quick management of vital information provided by internal and external sources. This results in a superior situational awareness that allows crews to conduct missions at high speed while maintaining a high degree of survivability due to the fact they can react to enemy threats before they materialize. The crew is connected to a sort of tactical internet via FBCB2, and they can send and receive text messages and reports, view maps, satellite and aerial pictures. Known information such as minefields, and enemy and friendly force positions that have been locked into the system can be displayed on these digital maps. The crew itself can insert information onto the maps through its own FBCB2 Blue Force Tracker terminal. The squad leader in the rear compartment of the M1126 Stryker ICV can also access the C4ISR system. He sits to the left of the vehicle commander. His seat is located along the left wall of the hull and he faces inwards. His VDT is mounted to the left of the commander's FBCB2. With the VDT, the squad leader and his soldiers have access to information provided by the DVE, FBCB2, RWS, vehicle diagnostic system, ETM and IETM. Thus, they are provided with the same situational awareness as the vehicle commander. Behind the squad leader's seat is a rectangular emergency escape hatch. In the roof above his seat is another rectangular hatch.

Protector Remote Weapon Station

In addition to the M1126 Stryker ICV, the M1132 Stryker ESV, M1135 Stryker NBCRV, M1130 Stryker CV and M1129 Stryker Mortar Carrier



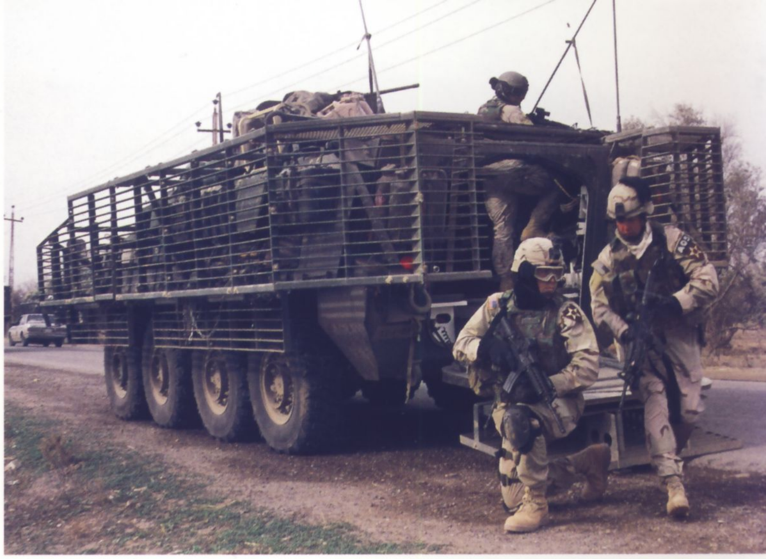
M1126 Stryker ICVs of an infantry platoon of C Company "Tigers", 3rd Battalion, 21st Infantry Regiment, on patrol in Mosul. Each rifle company of a Stryker-equipped infantry battalion consists of three infantry platoons. Each of these platoons can field four M1126 Stryker ICVs. (Carl Schulze)



The roof of the rear compartment of the M1126 Stryker ICV features two large air guard hatches. When opened, the hatches provide troops in the rear compartment with the capability of fighting while mounted, although this does expose them to enemy fire. During a patrol in Mosul, a soldier of the 3rd Battalion, 21st Infantry Regiment, can be seen standing in an open hatch. (Carl Schulze)

(MC-A variant only) are fitted with the Protector M151 RWS. Originally developed by Vinhög AS, today Kongsberg Gruppen ASA in Norway manufactures the Protector M151 RWS., The Protector was selected in October 2000 as the weapon station for the IAV. The universal soft-mount cradle of the RWS can be fitted with either a 12.7mm M2 MG or a 40mm Mk.19 MOD3 automatic grenade launcher. When an adapter is used, it is also possible to mount a 7.62mm M240B MG. The electrically-powered RWS has a weight of 128kg without a weapon. It consists of a roof-mounted weapon station and FCU (with display, buttons and electronics) mounted in front of the commander, along with a joystick-type control grip. The RWS sensor package includes a zoom CCD day camera, an uncooled IR camera, and an integrated laser rangefinder. The RWS can be traversed 360° while the mounted weapon can be elevated from –20° to +55°. Maximum azimuth and elevation slew rate for the RWS is 60° per second. According to the manufacturer's data, the M151 RWS can be operated in temperatures ranging from – 40°C to + 65°C. Fitted to the RWS are four M6 smoke grenade dischargers. Each of these features four 66mm barrels that can be fired in either groups or singly.

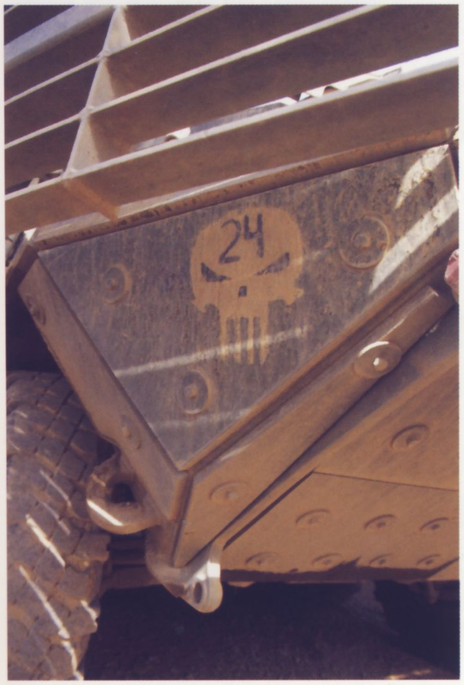
In 2004, the U.S. Army ordered the Block I upgraded version of the M151 RWS (called M151E1), and fielding began with the fifth brigade set of Stryker IAVs. The Block I upgrade includes a new thermal imaging module with an extremely extended range that provides two optical fields of view and two electronic fields of view. Also included in the Block I upgrade is a small tactical optical rifle-mounted laser rangefinder that shortens operator response time while visible and IR pointers allow coordinating engagements to include ground troops. Situational awareness was improved by a modified Video Imaging Module (VIM) featuring a color display. An improved control grip improved accessibility and operation by the gunner while the size of the ammo box was increased to allow storage of more ready ammunition. In addition, a newly fitted low-ammo sensor provides a warning when ammunition is getting low. At the time of writing, the U.S. Army has begun fielding the M151E2 RWS Block II. The Block II modification includes stabilization of the RWS allowing the vehicle to engage targets while on the move at speeds of up to 40km/h. In the future it is planned to modify the Protector M151 RWS so it can be fitted with the Javelin ATGM.



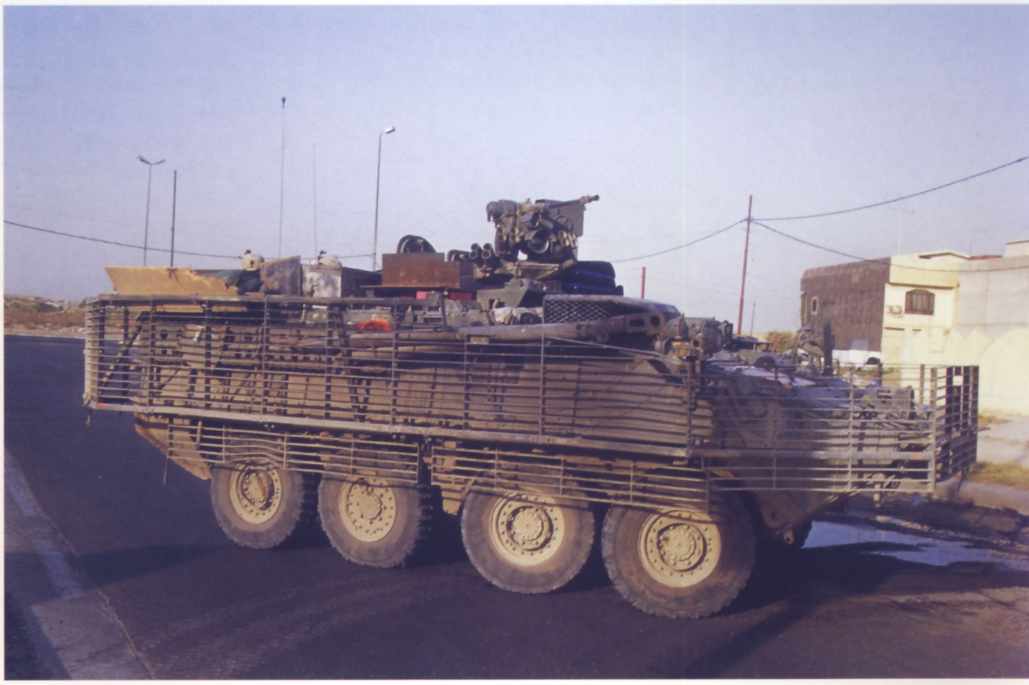
The M1126 Stryker ICV has a crew of two - the driver and vehicle commander. In the vehicle's troop compartment, up to nine fully equipped infantrymen can be seated. Here, soldiers of the 1st Battalion, 23rd Infantry Regiment, dismount from their M1126 Stryker ICV during an operation near Samarra in Iraq in December 2003. (Carl Schulze)

Rear compartment

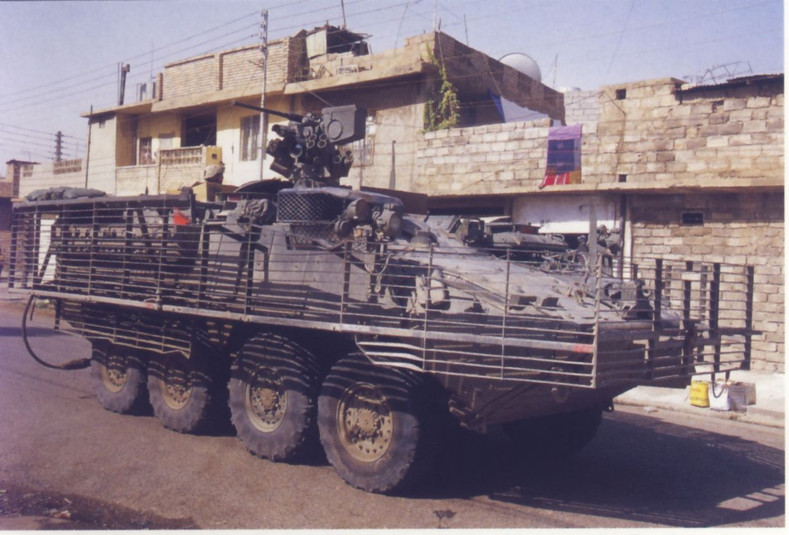
The eight-man infantry squad is seated facing inwards on two benches running down the left and right sides of the troop compartment. In the roof above the compartment are two large single-piece hatches. Called air guard hatches, they open outwards to the left and right. They are big enough to allow a soldier to stand in each and use his weapon during patrols - for example, to engage an enemy while on the move. Access to the troop compartment is gained via a large power-operated rear ramp in the rear wall of the vehicle. Inset into the ramp is a small door that opens to the right and allows passengers to enter and leave the vehicle without dropping the ramp. To store the squad's equipment, weapons and spare ammunition, countless mounting points are available in the rear compartment and elsewhere in the vehicle. One of two Javelin missiles is stored behind the bench on the right side wall, with the other kept in the tunnel between the driver's compartment and troop compartment. Also stored behind the benches are MREs, a mix of four AN/PVS-7B and AN/PVS-14 night vision goggles, an SB-993/GT switchboard, and a spare barrel for the M240B. An MRE heater is mounted on the left side close to the rear ramp. Next to the heater



Iraq, 2005. Some Stryker IAVs of the 1st Battalion, 24th Infantry Regiment "Deuce Four", feature a death's head badge with the regimental number "24" painted on their hulls. (Carl Schulze)



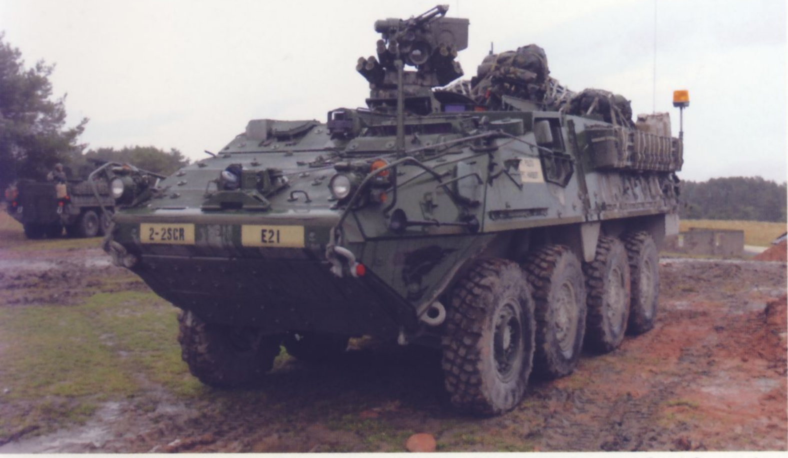
This M1126 Stryker ICV of the 3rd Battalion, 21st Infantry Regiment, was seen during a cordon and search operation in eastern Mosul in early August 2005. The vehicle is armed with a 12.7mm M2, and improvised blast shields are mounted on the vehicle's hull in order to protect the crew from IEDs and small-arms fire. Later, manufactured blast shields became standard on vehicles operating in Iraq. (Carl Schulze)



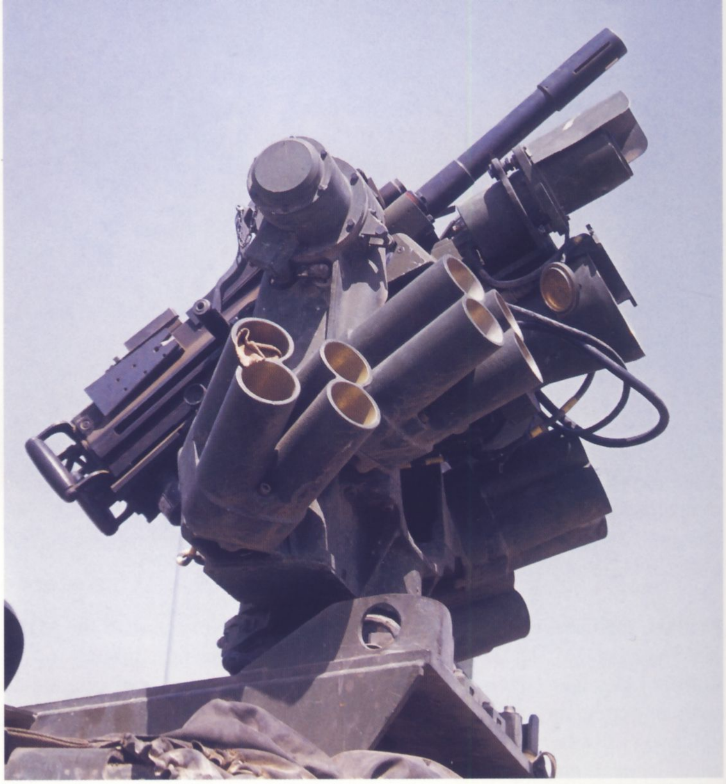
An M1126 Stryker ICV of the 3rd Battalion, 21st Infantry Regiment, on a routine patrol in Mosul in August 2005. The vehicle's M151 RWS is fitted with a 12.7mm M2 MG. (Carl Schulze)

are three M13A1 Gas Particulate Filter Units (GPFU) of the NBC protection system. Another storage rack next to the filters contains an M22 Automatic Chemical Agent Detector and Alarm (ACADA), an M136 AT-4 light antitank weapon, five night vision goggles, and more MREs. Beside the rack to the right is the inverter box with two power inverters, a battery charger and Power Entry Panel (PEP). Also stored on the left side is a portable AN/PRC-119F ASIP radio, a Raytheon AN/PAS-13B Thermal Weapon Sight (TWS) and an M11 Decontamination Apparatus.

Most of the crew's personal equipment, spare ammunition, recovery equipment (including shackles and a tow bar), a pioneer tool kit (axe, sledgehammer, mattock and shovel), a tripod for the M240B, a tripod for the crew-served weapon (M2 or Mk.19 MOD3 automatic grenade launcher), weapon cleaning kit, water and fuel cans, camouflage equipment, an M13 Decontamination Kit, and cable telephones are stored on the outer hull of the vehicle in mounting brackets and storage baskets. Ammunition available for the vehicle's RWS and personal weapons include 2000 rounds of 12.7mm (20 boxes of M8 API and M20 API-T linked), 480 rounds of 40mm (10 boxes of M430 HEDP for the Mk.19 MOD3), 3200 rounds of 7.62mm (16 boxes of M80 and M62 tracer linked), 2240 rounds of 5.56mm (M855 and M856 tracer), 1120 rounds of 5.56mm (M855 and M856 tracer linked), 16x 66mm smoke grenades (M76 IR and L8A3), hand grenades (M18 Smoke and AN-M14 Incendiary), 40mm grenades (M433 HEDP, M585 Illumination and M583 Illumination for the M203), and two M18A1 Claymore anti-personnel mines.



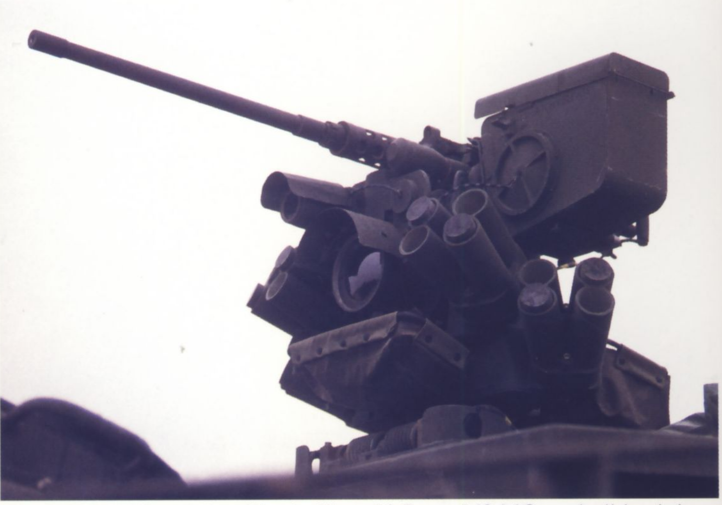
This M1126 Stryker ICV belongs to the Germany-based 2nd Squadron "Cougars", 2nd Stryker Cavalry Regiment, and was seen during Exercise "Cougar Steel" conducted in late 2006. The Stryker ICV has an overall length of 7315mm, is 2870mm wide and 2692mm high. Note the cougar head painted on the frontal lower side panel of the vehicle's armor, and the erected wire cutter on the glacis plate. (Ralph Zwilling)



The main armament of the M1126 Stryker ICV and some other Stryker IAV versions (CV, FSV, ESV) is mounted in the M151 RWS. The RWS has a weight of 128kg and can be operated without limitations in temperatures from -40°C to +65°C. The RWS sensor package consists of a day camera, an IR camera, and a laser rangefinder. The pictured RWS is fitted with a 40mm Mk.19 MOD3 automatic grenade launcher. (Carl Schulze)

Other systems

To protect its crew, the Stryker IAV has an advanced fire suppression system consisting of an FM200 automated fire suppression module for the troop compartment and two FM25 modules for the engine compartment. These are built by Nautical Fire Suppression Ltd. The FM200 features three optical fire sensors and two fire extinguisher assemblies filled with Halon gas. The FM25 consists of four optical fire sensors and three Halon fire extinguisher assemblies, of which one is mounted near the commander's station, one behind the squad leader's station and another on the left side near the power-operated ramp. In addition, portable fire extinguishers are available.



The M151 RWS can be fitted with a 12.7mm M2 MG, as in this picture. The elevation range of the weapon ranges from -20° to +55°, and the RWS rotates 360°. Fitted to the M151 RWS are four M6 smoke grenade launchers. (Carl Schulze)

An M1126 Stryker ICV provides covering fire with its 40mm Mk.19 MOD3 grenade launcher while its infantry squad dismounts and closes with the enemy. This picture illustrates the vehicle's main missions: transporting infantry squads close to their objective and providing fire support for dismounted troops. (Ralph Zwilling)

The Stryker IAV is fitted with an Auxiliary Power Unit (APU). Situated in the engine compartment, it features a liquid-cooled, diesel-engine DC electrical generator. The APU provides auxiliary electrical power during silent-watch missions. For NBC protection purposes, the Stryker IAV is equipped with an NBC Ventilating System (VS) that incorporates chemical and radiological defense and warning systems. The NBC VS consists of an M88 ACADA system, an AN/VDR-2 radiacmeter, individual M42 protective masks, M3 heaters and three M13A1 GPFUs. Filtered air is distributed through tubing to the M42 protective masks of the driver, commander, squad leader and the eight men of the infantry squad. Before the air reaches the M42 protective mask, it is heated by the M3 heater to prevent cold air from entering the lungs and condensation forming inside the masks. The Stryker is also equipped with a diesel-fired personnel and engine coolant circulation heater that warms and circulates air in the vehicle interior. The system features three heat exchangers and two vent fans.

A Rotzler Treibmatic TR 080 hydraulic winch with a pull capacity of 9525kg and a pulling force of 80kN is fitted to the Stryker IAV for self-recovery purposes. The winch is situated on the left side just behind the driver's hatch, and it features two drumheads positioned one next to the other. The 16mm cable is wrapped around the drums in a single layer and then runs into a separate cable storage drum. The cable outlet of the winch is on the left side of the vehicle. The cable is run along the sidewall of the Stryker IAV and via a pulley is directed to the rope trumpet mounted in the centre of the glacis plate. The winch offers a constant pulling force and a constant line speed throughout the entire rope length. The integrated control logic allows easy operation of the winch and reduces the possibility of operator errors. Two wire cutters are mounted on the vehicle to prevent damage to sophisticated equipment and injuries to crewmembers when operating with open hatches. The wire cutters are mounted to the front left of the driver's hatch and to the front left of the squad leader's hatch.

Stryker IAV armor protection

The Stryker vehicle hull is made of High Hardness steel, which provides basic armor protection. In order to achieve a higher protection level for the steel armor, a suite of 132 ceramic tiles can be mounted. Called MEXAS 2C (Modular Expandable Armor System 2C) and designed by the German company IBD/Deisenroth Engineering, the armor provides the vehicle with STANAG 4569 Level IV protection. Level IV protection means the armor can withstand hits by 14.5mm armor piercing rounds fired by heavy machine guns at a range of 200m at a velocity of 911m/s. As for artillery fragments, the armor offers protection against 20mm splinters (fragmentation simulation projectile) with a velocity of 960m/s when detonated above or on the side of the vehicle at a distance of 25m or above. One of the major threats for U.S. forces in Iraq is the Russian-designed RGP-7 short-range antitank weapon. The RPG-7 has a combat range of up to 500m and when a standard HEAT warhead such as the PG-7N is used, it can penetrate up to 400mm of steel armor. Other warheads such as tandem warheads to defeat reactive armor are also available. In order to protect the Stryker IAV from deadly RPGs, all Strykers deployed to Iraq are fitted with standoff add-on armor known as slat armor. The slat armor is fitted around the front, sides and rear of all Stryker IAV variants at a distance of some 400mm. The armor segments look like grills with spaced horizontal bars. The slat armor functions in two ways. It detonates an RPG warhead before it reaches the vehicle's hull or it damages the warhead when it strikes the bars. The latter results in the deformation of the warhead and prevents the shaped charge from developing its energy gas jet and boring through the armor of the hull.

This M1126 Stryker ICV was seen during an exercise in southern Germany. The vehicle belongs to the 2nd Squadron, 2nd Stryker Cavalry Regiment. Its M151 RWS is fitted with a 40mm Mk.19 MOD automatic grenade launcher. (Ralph Zwilling)

Development of slat armor took nine months and it was conducted prior to deployment of the first SBCT to Iraq in 2003. Manufactured by GDLS, the full slat kit for a Stryker has a weight of some 2200kg. A brigade set of slat armor costs $5.9 million according to a contract awarded to GDLS in May 2006. The increased width of the Stryker IAV when slat armor is fitted results in the vehicle losing its capability for transportation by a C-130 Hercules. The slat armor also makes it harder to maneuver the Stryker IAV

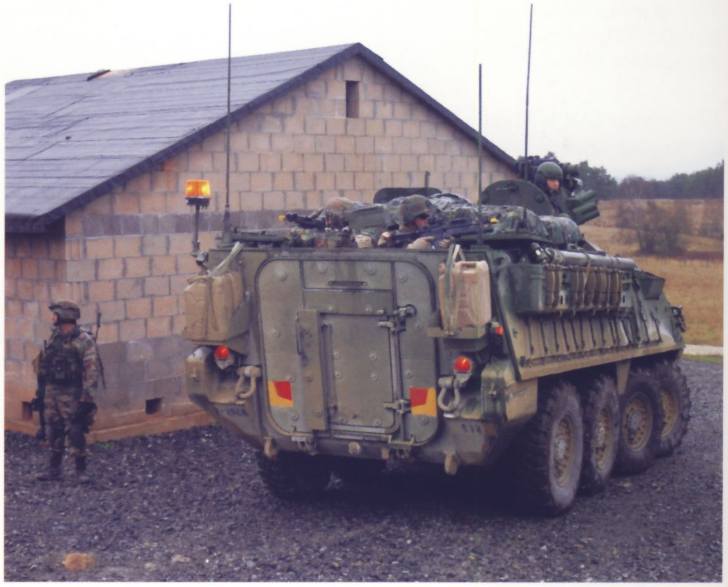
This pair of M1126 Stryker ICVs of E "Eagle" Company, 2nd Squadron, 2nd Stryker Cavalry Regiment, was seen during Exercise "Cougar Steel". Both vehicles are armed with 12.7mm M2 machine guns. (Ralph Zwilling)

Elements of the 2nd Squadron, 2nd Stryker Cavalry Regiment, conduct a live-fire exercise on the Grafenwöhr ranges in southern Germany. Even when mounted in the M151 RWS, the 12.7mm M2 can be fired manually by the vehicle commander. While this exposes him to enemy fire, it might be necessary in the case of a breakdown of the RWS controls or other malfunctions. (Ralph Zwilling)

in urban areas, while at higher speeds it increases the risk of accidentally rolling the vehicle. Due to the added weight of slat armor, malfunctions of the CTIS sometimes occur, and the speed of the vehicle is reduced. The slat armor is only an interim solution, as development of reactive add-on armor started back in November 2002. It was then that United Defense (now part of BAE Systems) was awarded a development and test contract worth $7.9 million. Product qualification testing of the new armor began in May 2003. After initial setbacks the full vehicle add-on reactive armor successfully completed live-fire and product qualification testing in 2004. In March 2005, United Defense was awarded a contract to provide 289 armor kits for the Stryker IAV. Delivery of the kits took place between September 2005 and October 2006. In February 2006, the first Strykers IAV were fitted with the new full-vehicle add-on reactive armor kits that add some 3100kg to the vehicle's combat weight. Other armor systems fitted to the Stryker IAV operating in Iraq are blast shields that run around the vehicle roof and hatches. Fitted from late 2004 onwards, these blast shields protect the crew from splinters and blast effects of IEDs.

The M1126 Stryker ICV has an operating range of 450km at a speed of 64km/h. It can negotiate side slopes of 30% and gradients of 60%. Obstacles with a height of 600mm can be climbed and trenches up to 2000mm wide can be crossed. When it comes to water obstacles, a depth of 1300mm can be negotiated. (Ralph Zwilling)

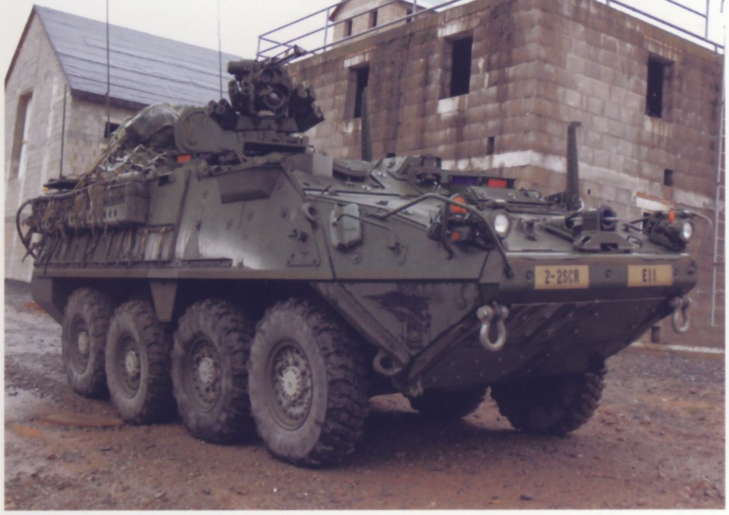
The driver is seated in a modern compartment in the front left of the hull. He reaches his position via a large single-piece hatch above his seat. (Ralph Zwilling)



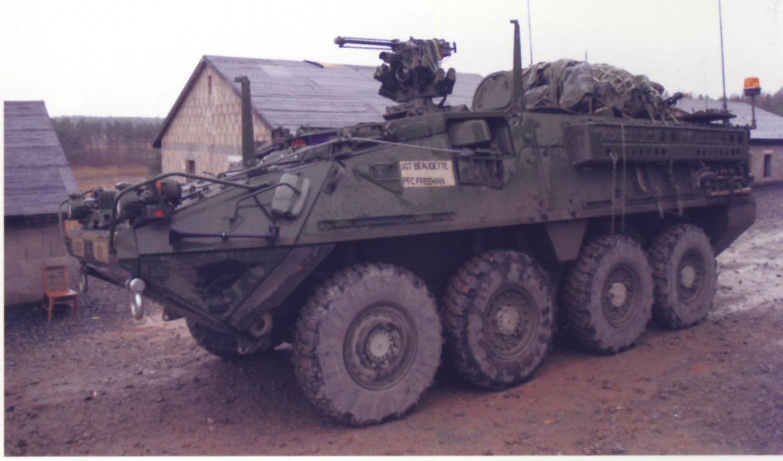
Rear view of an M1126 Stryker ICV of the 2nd Squadron, 2nd Stryker Cavalry Regiment. In view is the large rear ramp as well as the inset small door. To the left and right of the ramp below the taillights are the two fuel tanks of the vehicle. Each tank holds 100 liters of JP8 fuel. (Ralph Zwilling)

Block improvements and other modernizations

The fitting of full-vehicle add-on reactive armor is only one of the block improvements carried out on the Stryker vehicle fleet. A second planned block modification is the introduction of the M1129 Mortar Carrier (MC-B) fitted with an RMS6-L Recoil Mortar System that entered production in late 2004. Earlier vehicles of MC-A standard (featuring a 120mm M121 mortar that could only be fired after being dismounted) will be remanufactured to MC-B standard. Another block modification was the fitting of an ETM to all in-service Stryker IAVs. The ETM is centered on Quantum3D Ventana PCI COTS Embedded Graphics Subsystems (EGS) and Embedded Training System Software (ETSS). The system allows Stryker IAV crews to simulate precision gunnery and unit-level tactical training exercises with the help of computer-aided graphics. Furthermore, it also simulates sound effects created in an actual vehicle cued to the operation of various vehicle systems. Under the Advanced SINCGARS Improvement Program (ASIP), Stryker IAVs were fitted with an improved version of the secure voice, frequency hopping, digital data capable VHF-FM combat net radio. This replaced first-generation SINCGARS radios. Due to lessons learned in Iraq, the fitting of an air-conditioning system to Stryker IAVs was incorporated in the vehicle production run while earlier production vehicles will be refitted. GDLS was awarded a $3.3 million contract in October 2006 from TACOM for the initial phase of the design, engineering development, fabrication and test of Power and Data Management Architecture (PDMA). Once fielded, the PDMA will improve the integration of new technologies in the C4ISR suite of the Stryker IAV.



The M1126 Stryker ICV has a crew of two consisting of the vehicle driver and commander. An infantry squad of nine soldiers is transported in the vehicle's rear compartment. The vehicle has a curb weight of 15,926kg, which rises to 18,300kg when combat loaded. The pictured vehicle belongs to E "Eagle" Company, 2nd Squadron, 2nd Stryker Cavalry Regiment. (Ralph Zwilling)



The M1126 Stryker ICV is a fulltime four-wheel drive (with selective eight-wheel drive) wheeled armored vehicle. For self-recovery purposes, the vehicle is fitted with a Rotzler Treibmatic TR 080 hydraulic winch with a pull capacity of 9525kg and a pulling force of 80kN. The winch is situated in the left side of the vehicle just behind the driver's hatch, and features two drumheads positioned next to each other. (Ralph Zwilling)

Technical data for all Stryker IAV variants

Armor protection:	Hull made of High Hard steel armor, MEXAS 2C ceramic add-on armor and spall liner. In Iraq, vehicles are fitted with slat add-on armor
Maximum speed:	101km/h
Maximum reverse speed:	12km/h
Fuel capacity:	200 liters (100 liters in each left and right tank)
Engine:	350hp 7.2-litre Caterpillar 3126 I6 6-cylinder turbocharged JP8/diesel engine
Transmission:	Allison MD3066P automatic transmission with six forward speeds and one reverse speed
Operating range:	450km at a speed of 64km/h
Maximum grade:	60%
Maximum side slope:	30%
Maximum vertical step:	600mm
Maximum trench crossing:	2000mm
Maximum fording depth:	1300mm
Other systems:	AN/VDR-2 radiacmeter, M22 ACADA, M88 ACADA, AFES, NBC VS, self-recovery capstan winch, MRE heater and AN/VAS-5 DVE

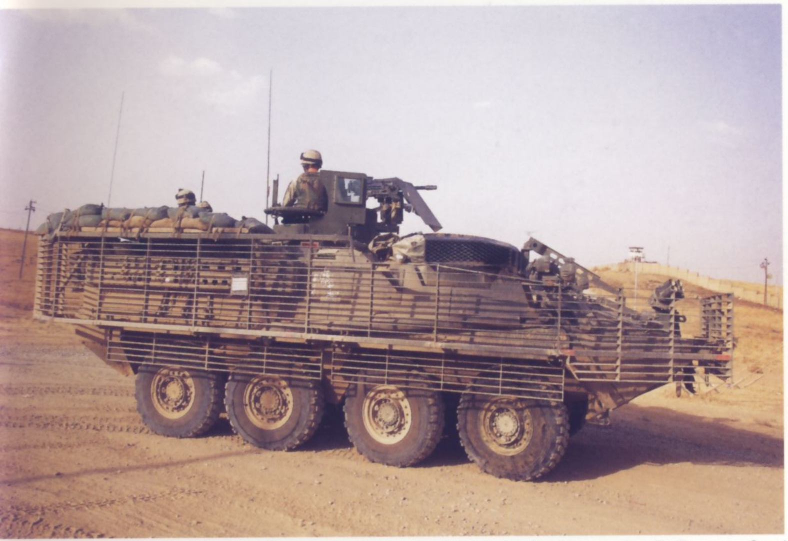
Specific technical data for the M1126 Stryker Infantry Carrier Vehicle

Crew:	2+9 (commander, driver, squad leader and eight infantrymen)
Combat weight:	18,300kg
Curb weight:	15,926kg
Maximum towed load:	22,680kg
Overall length:	7315mm (without slat armor)
Overall width:	2870mm (without slat armor)
Overall height:	2692mm (without slat armor)
Armament:	1x 12.7mm M2 MG or 1x40mm Mk.19 MOD3 automatic grenade launcher 4x M6 66mm four-tube smoke discharger systems
Squad weapons:	1x 7.62mm M240B, 1x Javelin Command Launch Unit, 1x M136 AT-4 light antitank weapon, 9x 5.56mm M4A1 carbines (two fitted with a 40mm M203 grenade launcher) and 2x5.56mm M249 Squad Automatic Weapons.
On-board ammunition:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 480 rounds of 40mm (M430 HEDP) 3200 rounds of 7.62mm (M80 and M62 tracer linked) 2240 rounds of 5.56mm (M855 and M856 tracer) 1120 rounds of 5.56mm (M855 and M856 tracer linked) 16x 66mm smoke grenades (M76 IR and L8A3) Hand grenades (M18 Smoke and AN-M14 Incendiary) 40mm rounds (M433 HEDP, M585 Illumination and M583 Illumination) for M203 2x M18A1 Claymore anti-personnel mines 2x Javelin ATGM missiles
C4ISR structure:	1x AN/VRC-88F ASIP radio, 1x AN/VRC-91F ASIP radio, 1x portable AN/PRC-119F ASIP radio, 2x portable AN/PRC126 radios, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, ETM, AN/PSN-11 PLGR (or its replacement the DAGR) and VIS/VIC

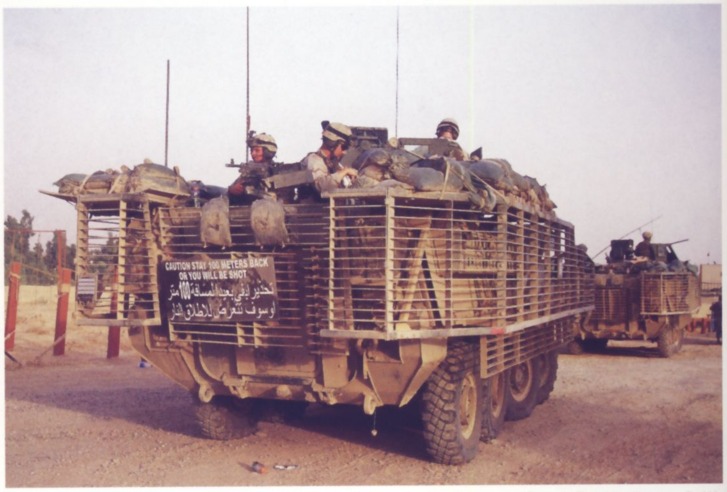
M1127 Stryker Reconnaissance Vehicle

Within the SBCT, the M1127 Stryker Reconnaissance Vehicle is used by operational assets of the RSTA Squadron as well as by scout platoons of infantry battalions. The units support the brigade by gathering vital surveillance data. The M1127 Stryker RV provides assets with a highly mobile platform to deploy the Long Range Advanced Scout Surveillance System (LRAS3). Despite the fact that the M1127 Stryker RV is based on the M1126 Stryker ICV, the vehicle does not feature the Protector M151 RWS. Instead, the commander's station is fitted with a power-assisted 360° traversable commander's cupola that features a pintle mount for a 12.7mm M2 MG or 40mm Mk.19 MOD3 automatic grenade launcher. Next to the weapon is the mount for the LRAS3. Manufactured by Raytheon, the LRAS3 is a long-range multi-sensor system that allows its user real-time detection, recognition, identification and exact positioning of enemy targets. The LRAS3 incorporates an advanced second-generation Forward-Looking Infrared (FLIR) sensor, a day TV camera, a GPS interferometer and an eye-safe laser rangefinder. The system's optics has two fields of view and it is possible to detect targets out to a range of 15km. The laser rangefinder of the LRAS3 is capable of measuring ranges to an accuracy of 5m.

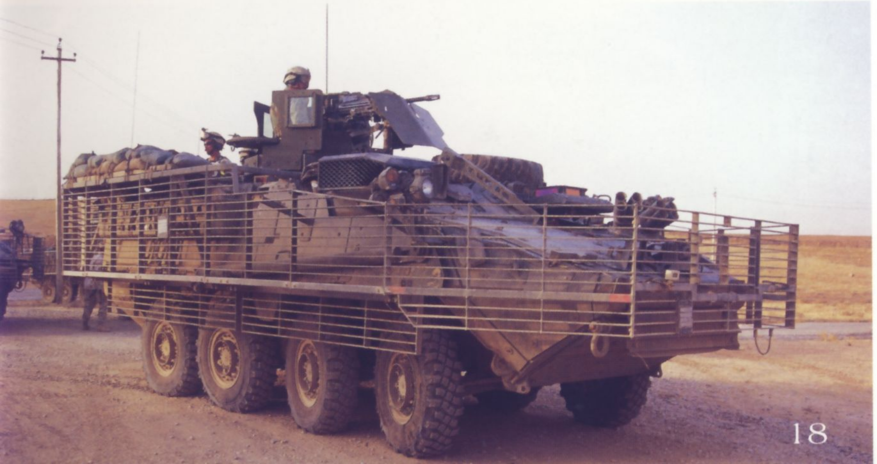
A five-man scout squad is seated along the left and right sides of the hull in the rear compartment of the M1127. Two team members sit on each side and the squad leader is seated in the same area as the M1126 Stryker ICV. In addition, most of the vehicle's sophisticated mission-related surveillance equipment is mounted in the rear compartment. The AN/VSQ-2 (V) 1 EPLRS, AN/UYK-128 FBCB2, AN/VRC-91F ASIP radio, AN/VRC-92F ASIP radio, and AN/PRC-150(C) HF radio are all installed in the C4ISR rack behind the commander's station. The radios are used to transmit gathered surveillance data either using secure voice or digital data communication. On the right side of the troop compartment, the AN/PSQ-3 (V) 3 Counter-Intelligence/Human Intelligence Automated Tool Set (or CHATS for short) is stored. CHATS consists of a laptop computer, scanner, digital camera, color printer, Precision Lightweight Global Positioning System Receiver, Secure Telephone Unit 1910 for secure data communications, external zip drive, Special Purpose - Tactical Communications Interface Module (SP-TCIM), and a connection cable used to connect CHATS to the vehicle's radio system. CHATS enables scouts to conduct human intelligence operations such as processing and transmitting gathered data. The scouts can even scan captured documents or take pictures of individuals and locations. CHATS is accredited for secret operations and uses commercial software applications for most common tasks but government-developed software for CI/HUMINT tasks. Another system stored on the right side behind the bench is the Lightweight Video Reconnaissance System. The LVRS allow the vehicle crew to capture, compress and transmit images through the vehicle's communications system to higher echelons. Like most elements of CHATS, the LVRS is man portable. Amongst the other equipment stored in the rear compartment or mounted on the hull of the M1127 Stryker RV are two M136 AT-4 antitank weapons, an LRAS3 tripod, one AN/PAS-17 Lightweight Weapon Sight, one AN/PAS-13 Lightweight TWS, a pair of 7x50 binoculars, a Case Medical Instrument CLS bag, one Javelin ATGM Command Launch Unit with two missiles, four sets of night vision goggles, and a Battery Charger on the Move (COTM).



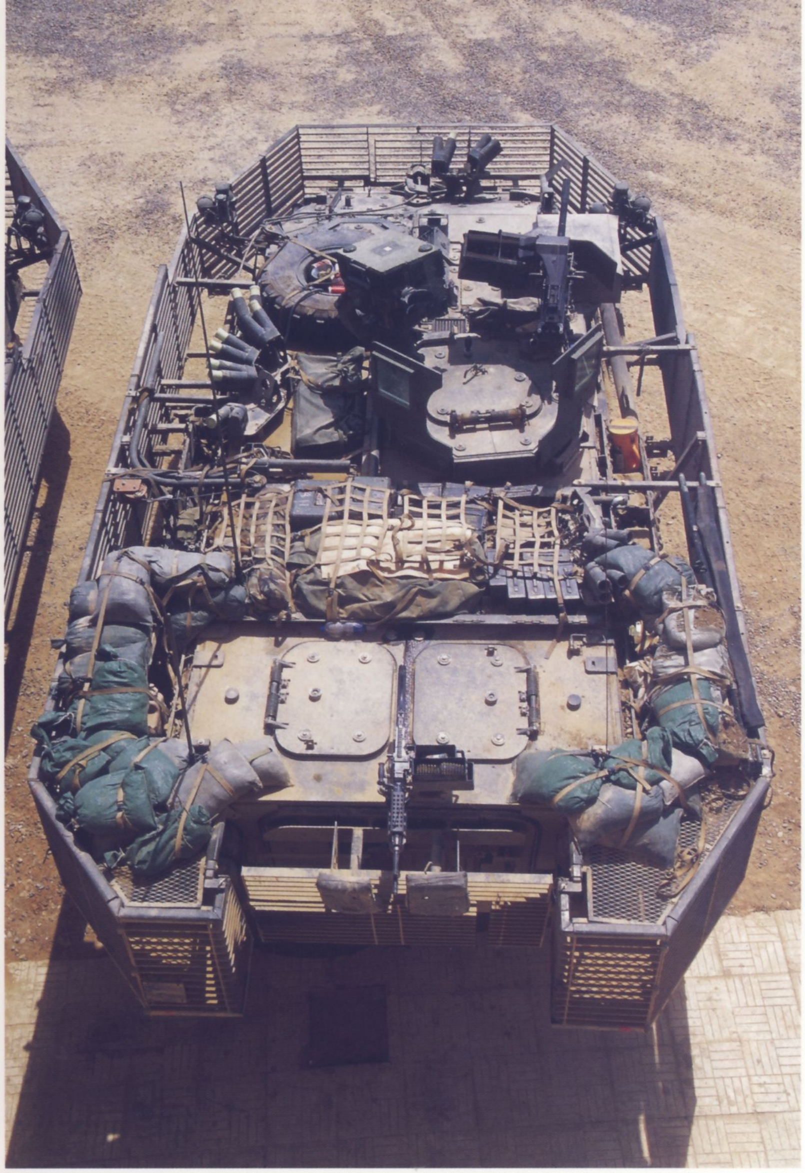
This M1127 Stryker Reconnaissance Vehicle belongs to D Troop, 2nd Battalion, 14th Cavalry Regiment, and was seen just before moving out on a cordon and search operation in Mosul in 2005. The vehicle is armed with a 40mm Mk.19 MOD3 automatic grenade launcher. The commander's cupola has been fitted with the RV/FSV Cupola Shield and Gunner Shield Kit. (Carl Schulze)



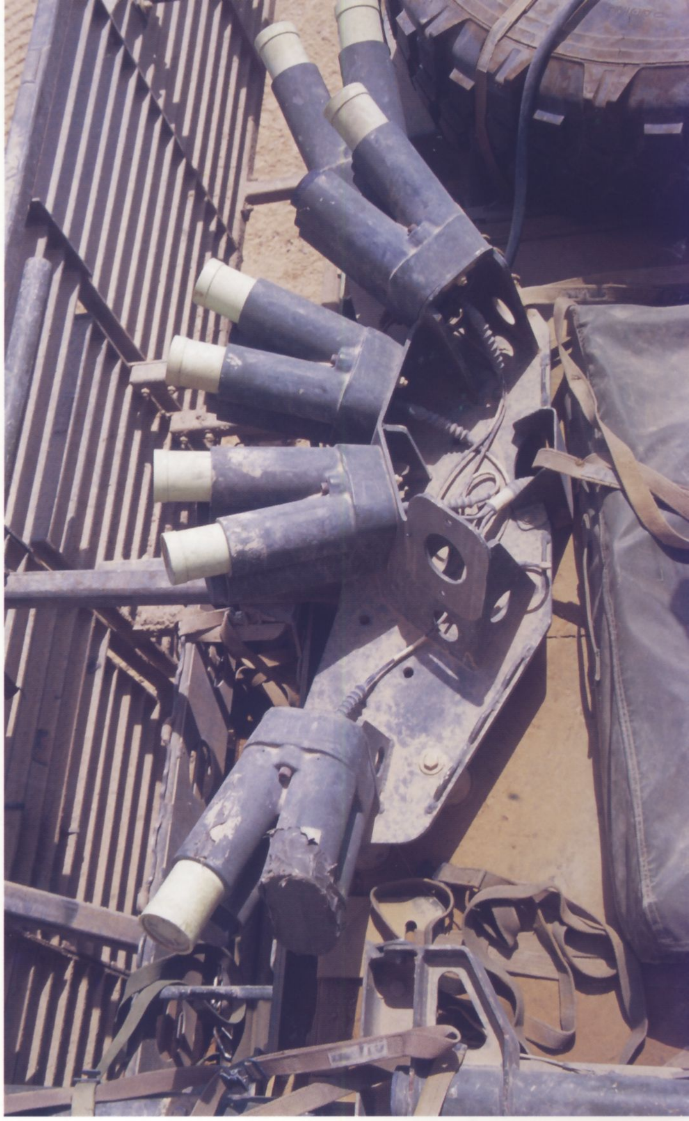
Rear view of an M1127 Stryker RV of D Troop, 2nd Battalion, 14th Cavalry Regiment. In order to provide additional protection for crewmembers standing in the open air guard hatches, sandbags have been placed around the roof. Note also the pads added to the slat armor on the large rear ramp. These have the task of reducing the noise of the ramp hitting the ground and were added to most Strykers in Iraq in order to allow troops a stealthier approach to their objectives. (Carl Schulze)



The M1127 Stryker Reconnaissance Vehicle is used by operational assets of RSTA squadrons as well as by scout platoons of infantry battalions. The pictured vehicle belongs to D Troop, 2nd Battalion, 14th Cavalry Regiment, and was seen in Mosul in August 2005. It is fitted with a slat standoff armor kit. (Carl Schulze)



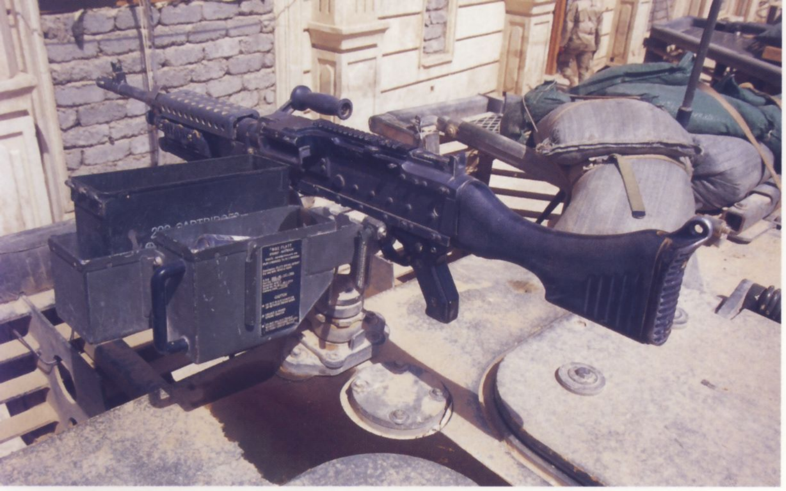
This top view shows the layout of the roof of the M1127 Stryker RV. Like the ICV, the RV features two air guard hatches in the rear compartment roof. The vehicle is armed with a 40mm Mk.19 MOD3 automatic grenade launcher and a 7.62mm M240B has been mounted at the rear of the vehicle on the Modified Crew-Served Weapon Mount (MCSWM). (Carl Schulze)



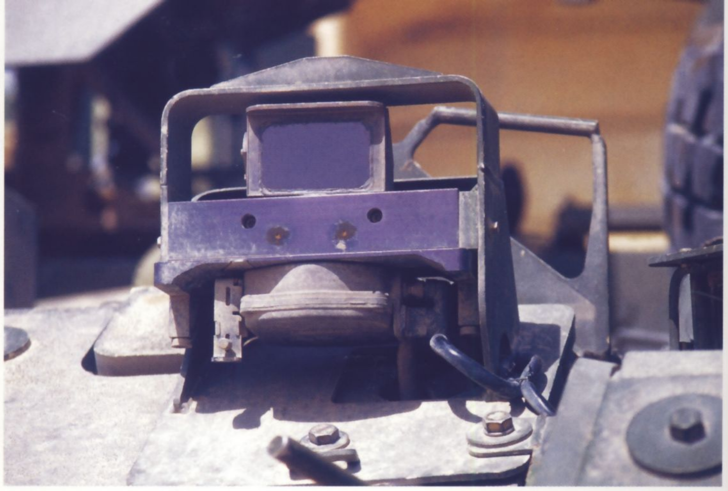
Four 66mm M6 four-tube smoke discharger systems are mounted on the left and right sides of the M1127 Stryker RV roof. This picture shows the four dischargers mounted behind the driver's compartment. With these, a thick smokescreen can be laid within seconds. In the case of detection by an enemy, the smoke provides cover for the vehicle while withdrawing. (Carl Schulze)

Specific technical data for the M1127 Stryker Reconnaissance Vehicle

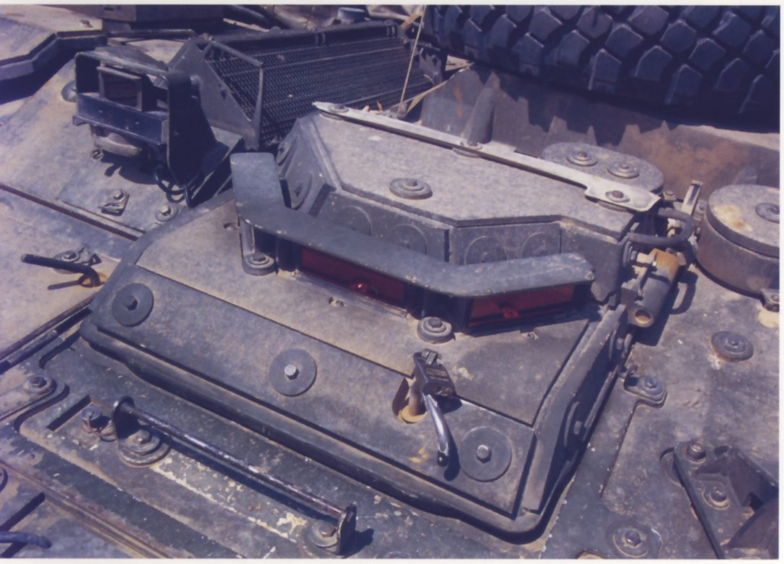
Crew:	2+5 (vehicle commander, driver, squad leader and four squad members)
Combat weight:	17,948kg
Curb weight:	16,138kg
Maximum towed load:	22,680kg
Overall length:	7306mm
Overall width:	2704mm
Overall height:	3308mm
Armament:	1x 12.7mm M2 MG or 1x40mm Mk.19 MOD3 automatic grenade launcher 12x M6 66mm four-tube smoke discharger systems 1x Javelin Command Launch Unit, 2x M136 AT-4 light antitank weapons, 6x 5.56mm M4A1 carbines (two fitted with a 40mm M203 grenade launcher) and 1x 5.56mm M249 Squad Automatic Weapon
Ammunition for main armament:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 480 rounds of 40mm (M430 HEDP) 16x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	Long Range Advanced Scout Surveillance System (LRAS3), 1x AN/VRC-91F ASIP radio, 1x AN/VRC-92F ASIP radio, 1x AN/PRC-150(C) HF radio, 1x portable AN/PRC-119F ASIP radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, Embedded Training Module, AN/PSN-11 PLGR (or its replacement, the DAGR), VIS/VIC, Lightweight Video Reconnaissance System (LVRS) and AN/PYQ-3 (V) 3 Counter Intelligence/Human Intelligence Automated Tool Set (CHATS)
Other systems:	Battery Chargers on the Move (COTM), Power Assisted Commander's Cupola, 1x AN/PAS-13 Lightweight Thermal Weapon Sight, 2x AN/PAS-14 Lightweight Weapon Sights



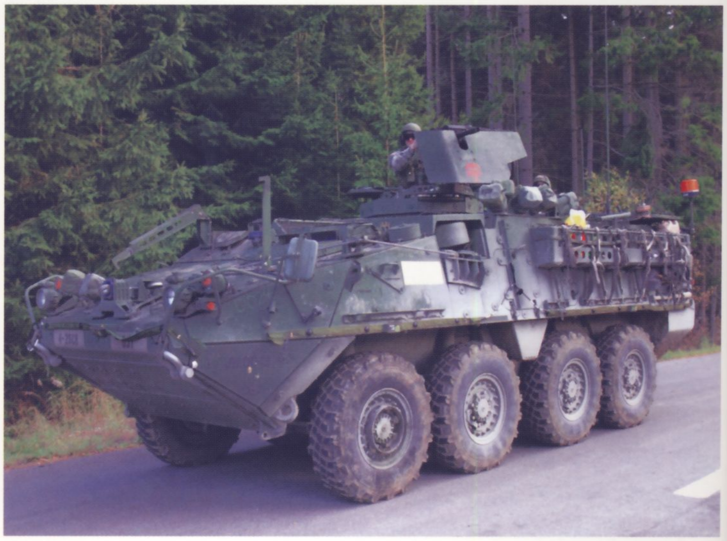
The MCSWM is mounted at the rear of the roof between the two air guard hatches of the M1127 Stryker RV and the M1126 ICV. It is one of the modifications to enter service based on lessons learned in Iraq. The MCSWM can be fitted with either a 5.56mm M249 SAW or, as shown, with a 7.62mm M240B. Note the ammo box holder. (Carl Schulze)



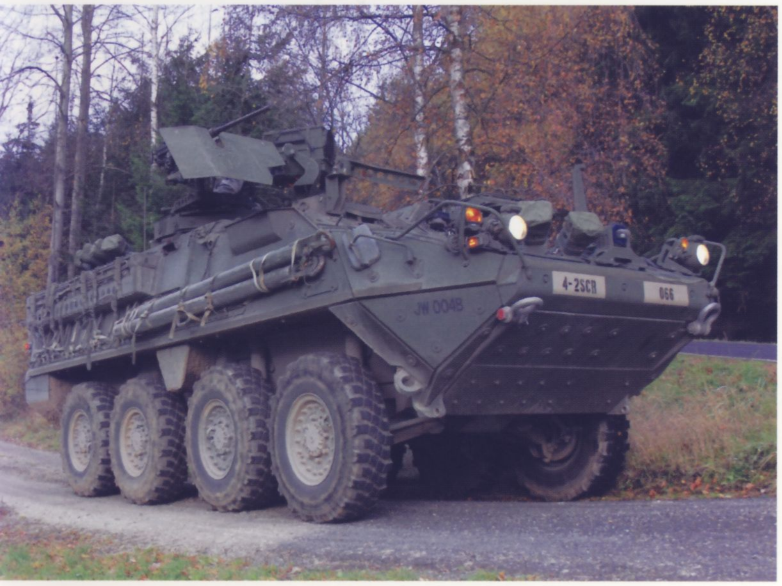
Seen to the left of the driver's hatch is the thermal sensor for the AN/VAS-5 DVE. The sensor is linked by a cable to the display unit mounted in front of the driver's seat. The DVE follows the thermal imaging principle and allows the Stryker IAV to be driven at night without visual restrictions. (Carl Schulze)



Detailed view of the driver's hatch of an M1127 Stryker RV. In the hatch are three M17E4 periscopes for driving in daylight under armor protection. The driver's hatch is opened vertically towards the rear. (Carl Schulze)



This M1127 Stryker RV belongs to the 4th Squadron, 2nd Stryker Cavalry Regiment, and was seen during an exercise in southern Germany. The vehicle is armed with a 40mm Mk.19 MOD3 automatic grenade launcher. Note the red skull badge of the unit painted on the Gunner Shield Kit. (Ralph Zwilling)

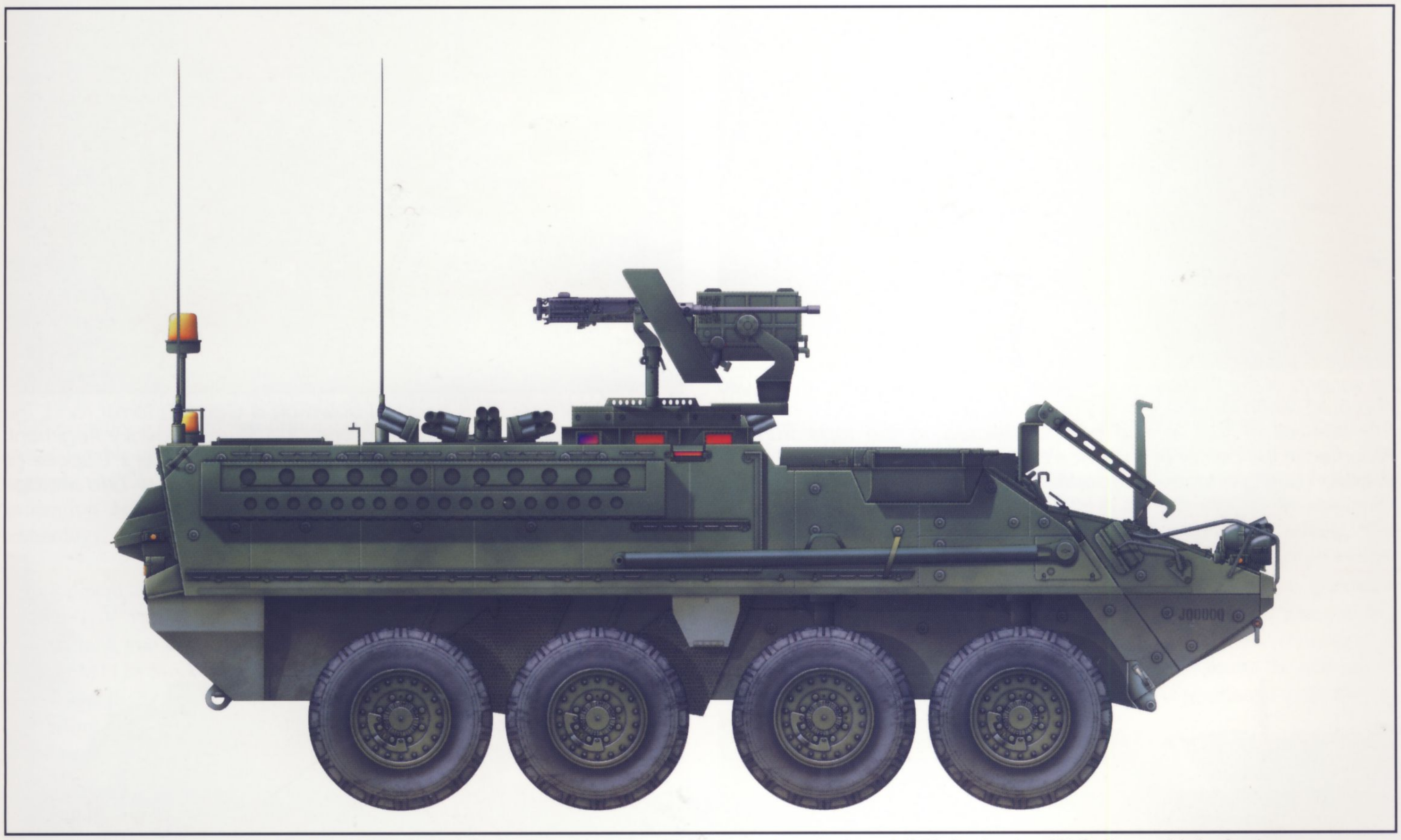


Another picture of an M1127 Stryker RV of the 4th Squadron, 2nd Stryker Cavalry Regiment. The M1127 Stryker RV has a combat weight of 17,948kg and a curb weight of 16,138kg. The vehicle is 7306mm long, 2704mm wide and 3308mm high. (Ralph Zwilling)

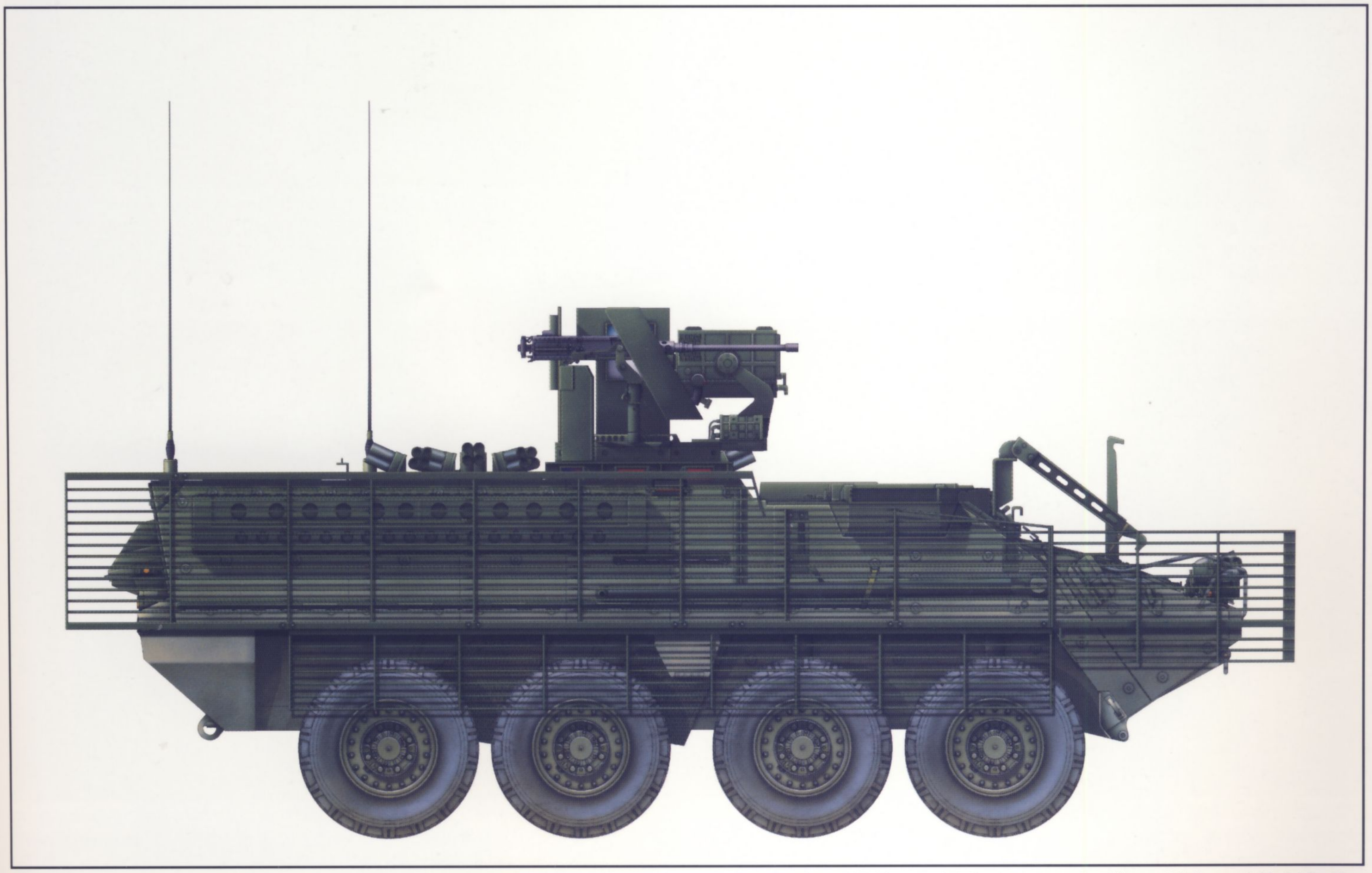
A reconnaissance patrol of the 4th Squadron, 2nd Stryker Cavalry Regiment, moves through a German forest in autumn 2006. The vehicles are M1127 Stryker RVs. The M1127 Stryker RV enables RSTA squadrons to provide the SBCT with a sharp picture of the battlefield situation. (Ralph Zwilling)

*The
assis
cam*

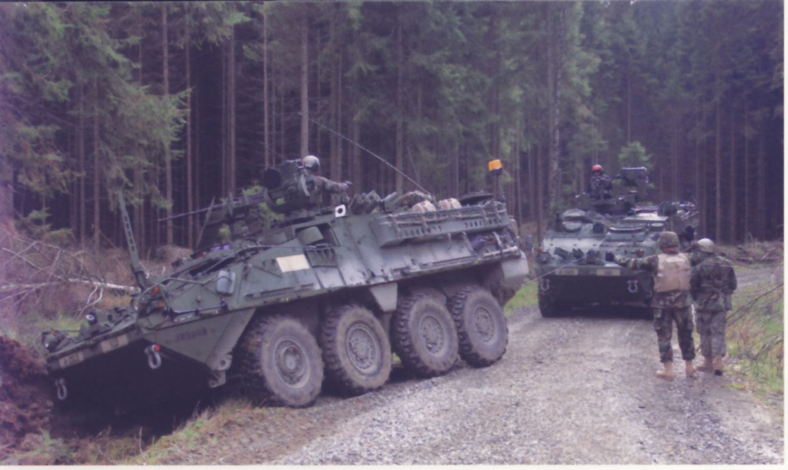
*This
com*



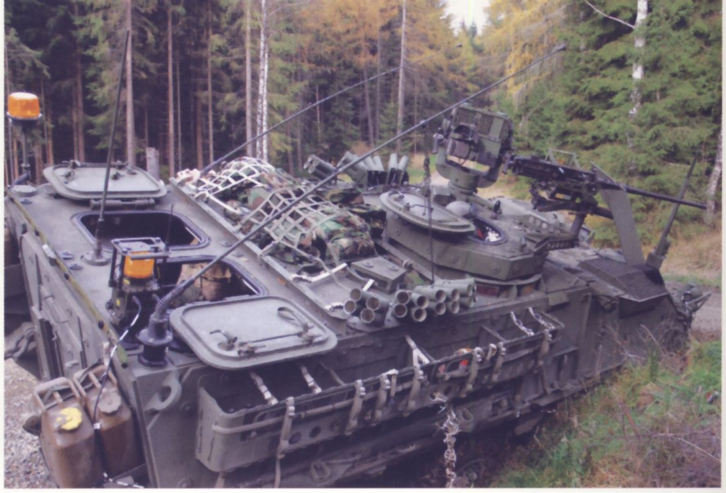
The reconnaissance variant is the M1127 Stryker Reconnaissance Vehicle. Instead of an M151 Protector RWS, the vehicle features a power-assisted commander's cupola on which the LRAS3 is mounted. The LRAS3 incorporates an advanced second-generation FLIR sensor, a day TV camera, a GPS interferometer, and an eye-safe laser rangefinder.



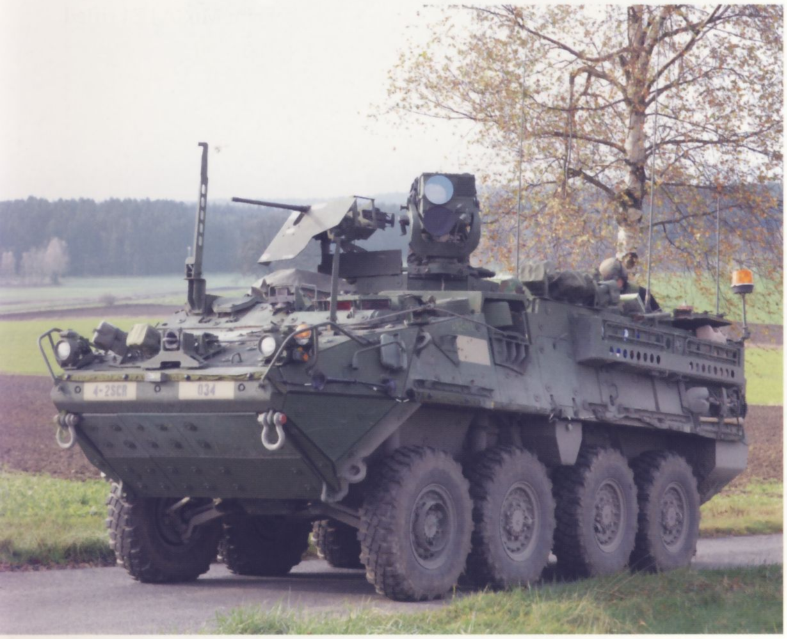
This M1127 Stryker Reconnaissance Vehicle belongs to a unit deployed to Iraq for OIF. The vehicle is armed with a 12.7mm M2 MG. The commander's cupola has been fitted with the RV/FSV Cupola Shield and the Gunner Shield Kit.



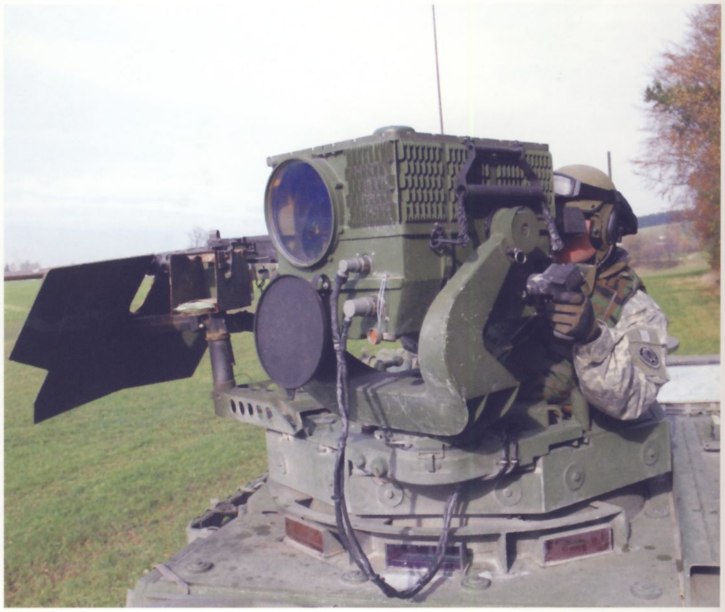
All variants of the Stryker IAV are fitted with a Rotzler Treibmatic TR 080 hydraulic winch for self-recovery purposes. The 16mm cable runs along the sidewall of the vehicle and is directed to the rope trumpet mounted in the center of the glacis plate. Here the winch can be seen in action during a recovery operation in Germany. (Ralph Zwilling)



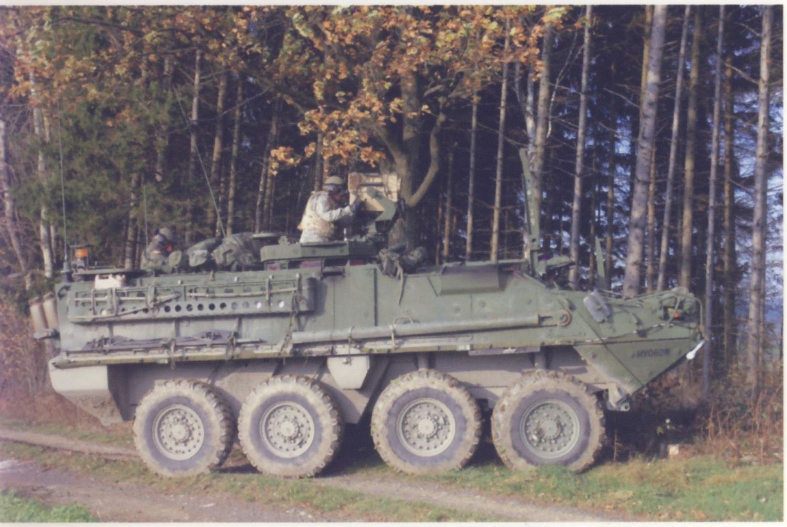
An M1127 Stryker RV is bogged down on a German forest road. The vehicle belongs to the 4th Squadron, 2nd Stryker Cavalry Regiment. From this perspective, the Power Assisted Commander's Cupola, air guard hatches, LRAS3, 66mm M6 smoke dischargers and storage baskets on the vehicle side are apparent. (Ralph Zwilling)



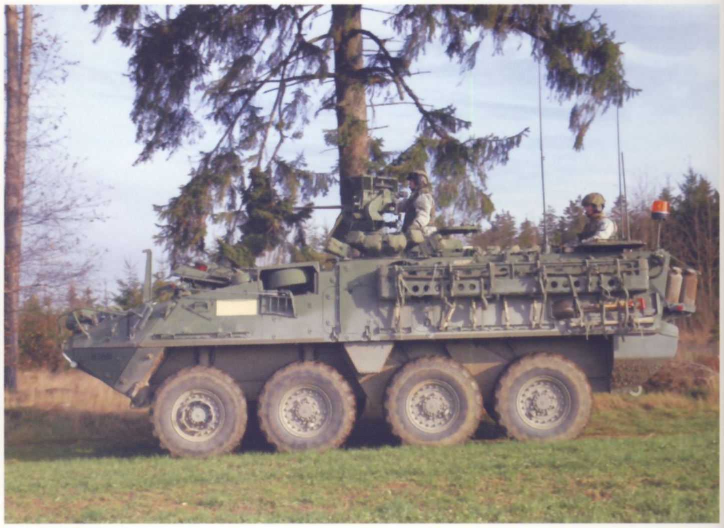
This vehicle belongs to O "Outlaw" Troop of the 4th Squadron, 2nd Stryker Cavalry Regiment. The troop can field a total of 13 M1127 Stryker RVs and one M1126 Stryker ICV. (Ralph Zwilling)



Detailed view of the LRAS3 mounted on the Power Assisted Commander's Cupola of an M1127 Stryker RV. Next to it is a 12.7mm M2 MG on a pintle mount. The cupola can be traversed a full 360°. (Ralph Zwilling)



Through his LRAS3, a vehicle commander of an M1127 Stryker RV observes enemy activity in a German village. Manufactured by Raytheon, the LRAS3 is a long-range multi-sensor system that allows its user real-time detection, recognition, identification and exact positioning of enemy targets. (Ralph Zwilling)



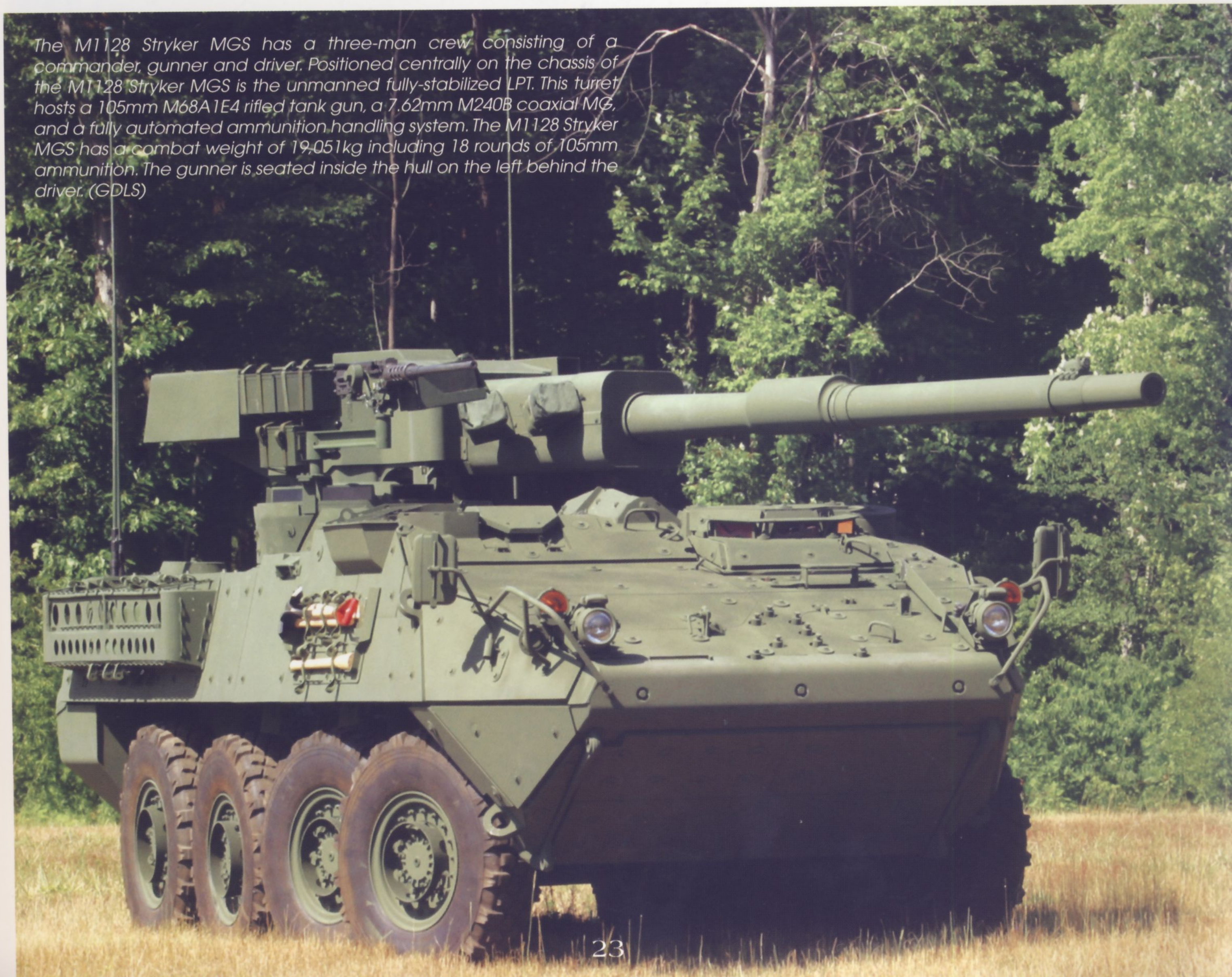
An M1127 Stryker RV moves down a farm track. The vehicle belongs to O "Outlaw" Troop of the 4th Squadron, 2nd Stryker Cavalry Regiment. Like all Stryker IAVs, the M1127 is powered by a 350hp 7.2-litre Caterpillar 3126 I6 6-cylinder turbocharged engine that allows the vehicle to reach a top speed of 101km/h. (Ralph Zwilling)

M1128 Stryker Mobile Gun System

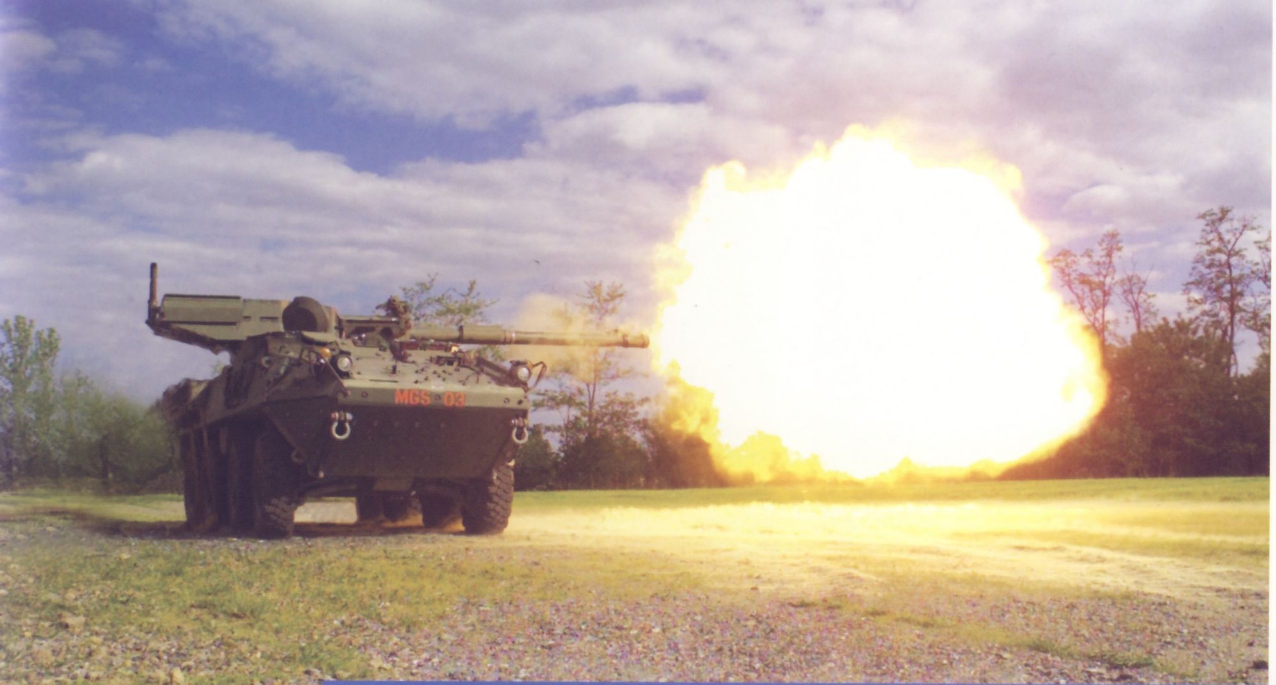
The M1128 Stryker Mobile Gun System is the second basic variant of the Stryker IAV. The vehicle's chassis is a derivative of the M1126 Stryker ICV and the vehicle's hull differs from the ICV in many ways, especially at the rear where the fully-stabilized Low Profile Turret (LPT) is mounted. However, on the technical side the M1128 Stryker MGS chares commonality in most technical parts such as engine and transmission. The M1128 Stryker MGS does not feature the self-recovery winch common to all other Strykers. The mission of the M1128 Stryker MGS is to provide mobile direct and indirect fire for close support of ground troops in complex and urban terrain. More specifically, this means destroying enemy bunkers and fortified positions, suppressing the enemy with accurate fire during attacks, and the creation of breaching points in buildings or other structures for dismounted troops. In defensive battles, the M1128 Stryker MGS provides a limited anti-armor capability as the vehicle's 105mm tank gun is capable of destroying most armored vehicles currently in service (for example, APCs, light tanks, armored reconnaissance vehicles and older generation MBTs). Due to its stabilized turret and latest fire control technology, the M1128 Stryker MGS can shoot on the move.

Development of the M1128 Stryker MGS started simultaneously with other Stryker IAV variants, though several problems such as integrating the 105mm tank gun onto the LAV III chassis led to delays. On 26 July 2002, the first M1128 Stryker MGS prototype was handed over to the U.S. Army. Up till March 2003, a total of eight pre-production vehicles were delivered. According to GDLS information, LRIP of the M1128 Stryker MGS started in December 2005. A total of 72 M1128 Stryker MGS LRIP vehicles have been produced. The vehicles will run through various tests and an intensive user evaluation will be conducted through to late 2007. Currently it is planned to start full-rate production in the fourth quarter of 2007. Once the M1128 Stryker MGS is fielded, each infantry company within infantry battalions of the SBCT will comprise a Mobile Gun System Platoon with three vehicles. It is believed that some M1128 Stryker MGSs will also see service with units of the 82nd "All American" Airborne Division. Canada is also introducing the M1128 Stryker MGS with a purchase of some 66 vehicles to replace its fleet of Leopard 1 MBTs.

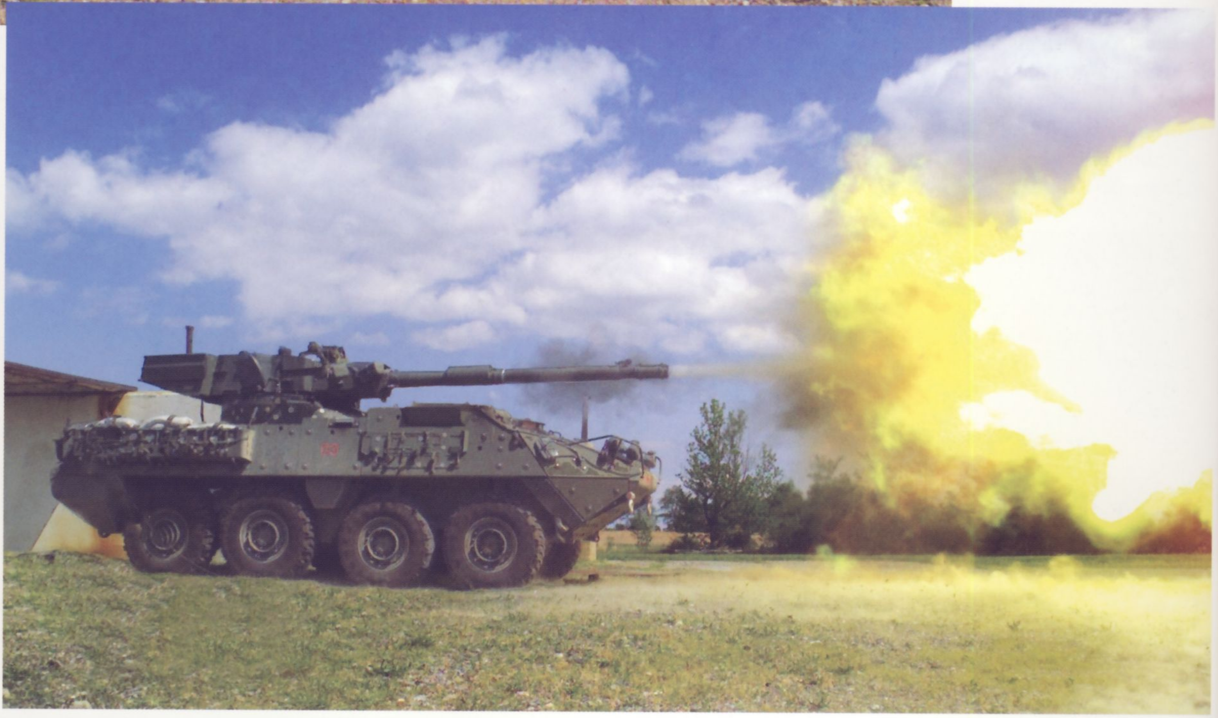
Located centrally on the chassis of the M1128 Stryker MGS is the unmanned, fully-stabilized, shoot-on-the-move LPT. The turret hosts a 105mm M68A1E4 rifled tank gun, a 7.62mm M240B coaxial MG, the fully automated ammunition handling system, the advanced state-of-the-art day and thermal sighting system, as well as the integrated fully ballistic Fire Control System. Inside the M1128 Stryker MGS are stored 18 105mm rounds. Eight of these are ready to fire in the carousel of the automatic loader while the remaining ten are stored elsewhere in the vehicle. The main armament of the M1128 Stryker MGS is the 105mm M68A1E4 rifled tank gun. This is a modified version of the UK-designed Royal Ordnance 105mm L7 tank gun. The crew can fire the gun while on the move in any direction. The M1128 Stryker MGS has a three-man crew consisting of commander, gunner and driver. The gunner is seated inside the hull on the left side behind the driver, while the commander is positioned to the rear of the engine compartment.



The M1128 Stryker MGS has a three-man crew consisting of a commander, gunner and driver. Positioned centrally on the chassis of the M1128 Stryker MGS is the unmanned fully-stabilized LPT. This turret hosts a 105mm M68A1E4 rifled tank gun, a 7.62mm M240B coaxial MG, and a fully automated ammunition handling system. The M1128 Stryker MGS has a combat weight of 19,051kg including 18 rounds of 105mm ammunition. The gunner is seated inside the hull on the left behind the driver. (GDLS)



The power-operated, fully-stabilized LPT of the M1128 Stryker MGS can traverse 360°. The 105mm M68A1E4 rifled tank gun can be elevated from −5° to +15°. The gun has a cyclic rate of fire of 10 rounds per second. The fully automated ammunition handling system can handle any 105mm NATO-standard ammunition. After firing the round, the cartridge is automatically ejected overboard. (GDLS)



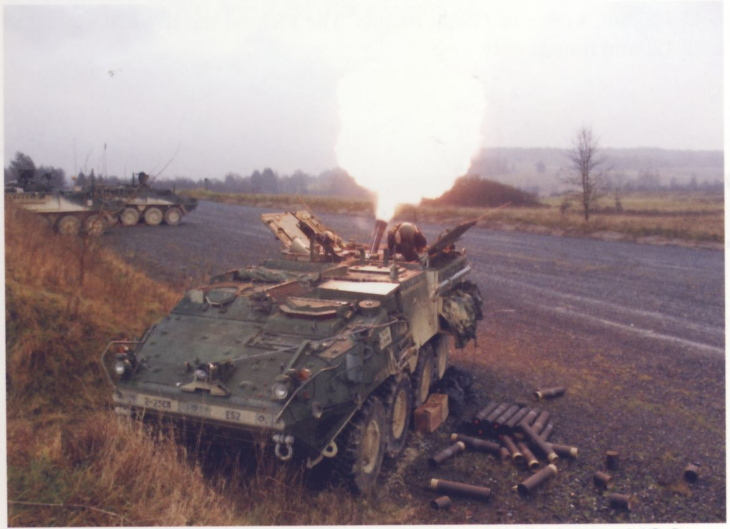
Here one of the eight M1128 Stryker MGS prototypes can be seen during live-firing trials. The gun is connected to a fully automated ammunition handling system. The MGS has the capability of firing a wide range of 105mm ammunition including High Explosive Anti-Tank, High Explosive Plastic-Tracer, Armor Piercing Fin Stabilized Discarding Sabot, and Canister rounds. (GDLS)

Specific technical data for the M1128 Stryker Mobile Gun System

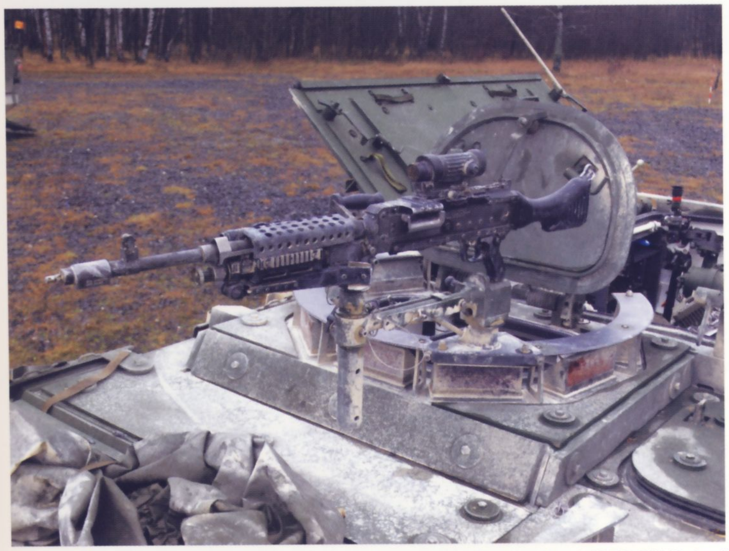
Crew:	3 (commander, driver and gunner)
Combat weight:	19,051kg
Curb weight:	15,054kg
Maximum towed load:	22,500kg
Overall length:	7315mm
Overall width:	2870mm
Overall height:	2692mm
Armament:	1x 105mm M68A1E4 tank gun 1x 7.62mm M240B coaxial MG 1x 12.7mm M2 MG 4x M6 66mm four-tube smoke dischargers
Ammunition for main armament:	18 rounds of 105mm NATO-standard ammunition 3400 rounds of 7.62mm (M80 and M62 tracer linked) 400 rounds of 12.7mm (M8 API and M20 API-T linked) 32x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	No details available at the time of writing
Other systems:	Low Profile Turret (LPT), integrated fully ballistic Fire Control System (FCS), day and thermal sighting system, automated ammunition handling system DR-8 Reeling Machine, M26 Weapon Boresighting Equipment, AN/PAS-14 Night Vision Device

M1129 Stryker Mortar Carrier

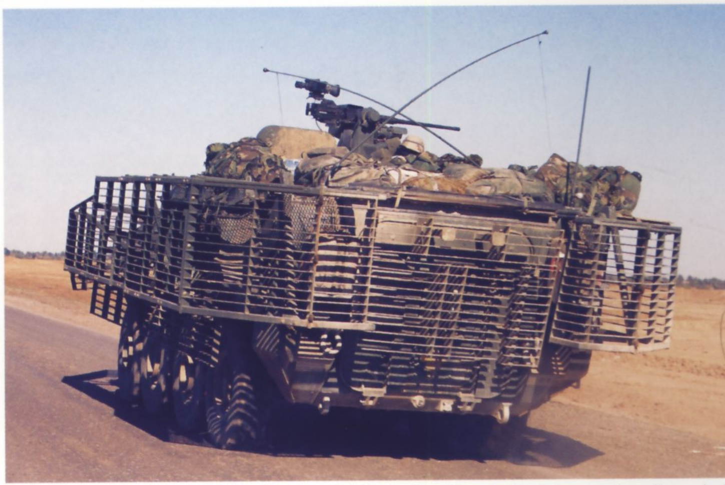
The M1129 Stryker Mortar Carrier provides units of the SBCT with a mobile source of high-angle indirect fire. The mortar is a close support weapon system that is highly effective during operations in complex terrain and urban areas. M1129 Stryker MCs are in service with mortar platoons of the battalion and mortar sections of combat companies. The early version was the M1129 Stryker Mortar Carrier-A, which was nearly identical to the M1126 Stryker ICV, and featured a Protector M151 RWS. The M1129 Stryker MC-A carried two mortars of different calibers but lacked the capability of firing from inside the vehicle. It was more a transport vehicle for mortars, their ammunition and crew. The prime weapon system was the 120mm M121 mortar. Vehicles of the battalion mortar platoon additionally carried an 81mm M252 Medium Extended Range Mortar, while vehicles of company mortar sections carried a 60mm M224 Lightweight Company Mortar System. On arrival at a possible firing position, the crew dismounted and set up the mortars outside the vehicle. The mortar tubes, bipods, sighting equipment and ammunition were carried inside the vehicle while the baseplates were stored outside the hull on the side to the left and right rear. The M1129 Stryker MC-A belongs to the eight Stryker IAV variants that entered initial low-rate production back in 2001.



The 120mm Recoiling Mortar System 6-L of the M1129 Stryker MC-B can be fired from inside the vehicle. A total of 60 120mm rounds are stored inside the vehicle. The weapon's combat range is beyond 6700m, and HE as well as other ammunition types can be fired. The pictured vehicle belongs to the 2nd Squadron, 2nd Stryker Cavalry Regiment. (Ralph Zwilling)



The M1129 Stryker MC-B is not fitted with the Protector M151 RWS, but the commander's station is instead equipped with a skate-mounted 7.62mm M240B MG as seen here. (Ralph Zwilling)

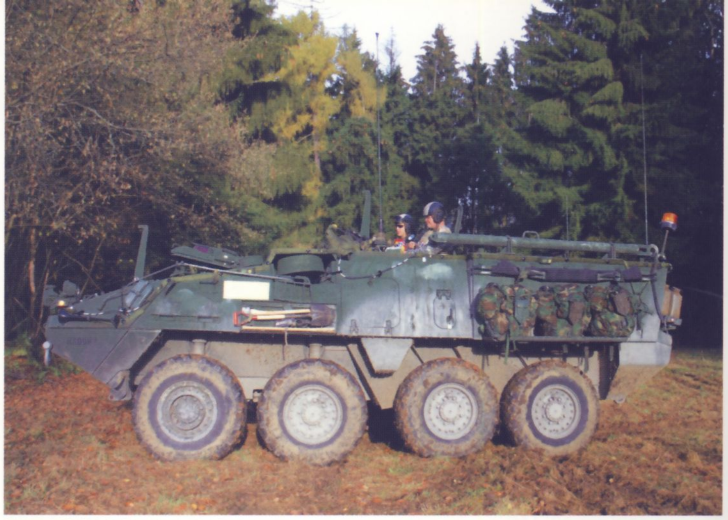


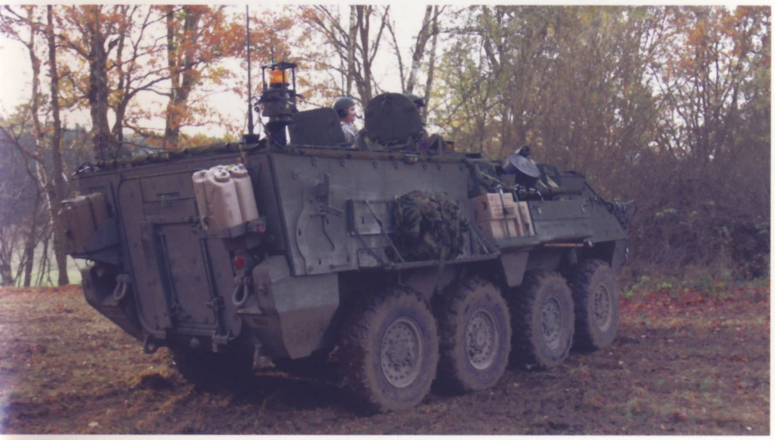
Rear view of an M1129 Stryker MC-A. On the left side under the slat armor is the baseplate of the 120mm M121 mortar. Once enough M1129 Stryker MC-Bs are available, the earlier version will be withdrawn from service as it does not feature the capability of firing the mortar from inside the vehicle. Ammunition for the 120mm mortar carried inside the vehicle includes HE, Illumination, IR Illumination, Smoke, Precision Guided and Dual-Purpose Improved Conventional Munitions (DPICM). In addition to the 120mm mortar, the vehicle is equipped with either an additional 81mm or 60mm mortar. (Carl Schulze)

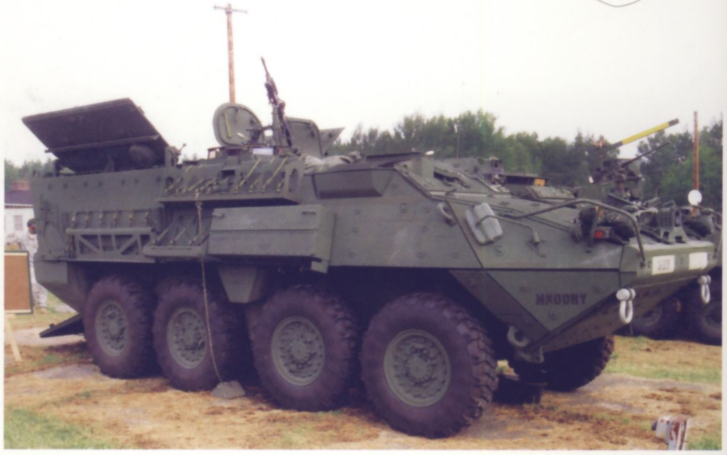
The second version of the mortar carrier is the M1129 Stryker Mortar Carrier-B. In early 2005, full-rate production of this second version started and the first vehicles were fielded in the 3rd Brigade, 2nd Infantry Division, in late 2005. Once enough M1129 Stryker MC-Bs are available, the MC-A will be taken out of service and existing vehicles converted into M1126 Stryker ICVs. The M1129 Stryker MC-B is based on the M1126 Stryker ICV but features a modified hull and rear compartment. The vehicle is not fitted with the Protector M151 RWS but instead the commander's station is equipped with a skate-mounted 7.62mm M240B MG. The sidewalls of the rear compartment are vertical and in the roof there is a large two-piece hatch that opens to the left and right. Below the hatch is the vehicle's main armament - the 120mm Recoiling Mortar System 6-L. The RMS6-L is essentially the CARDOM system designed by the Israeli company Soltam. The mortar is mounted on a baseplate that can be traversed 4400 mils. The mortar can be traversed left and right by turning the mounting. However, the RMS6-L can only be fired in the direction of the rear of the vehicle. The bearing can be set by turning a hand wheel at the rear of the mortar cradle. Another hand wheel on the left side is used for setting the elevation. The elevation range of the mortar is 700 to 1486 mils. The Soltam designation for the 120mm barrel is K-6. The Blast Attenuator Device Bed is mounted on the muzzle of the mortar barrel, which deflects the muzzle blast away from the crew. The mortar has a maximum effective range of 6700m, and a burst rate of 16 rounds in one minute can be achieved by a well-trained crew. The sustained rate of fire for the RMS6-L is four rounds per minute. The RMS6-L features a recoil system that attenuates firing loads and reduces stress on the vehicle. However, in order to better withstand the recoil force of the 120mm RMS6-L, the M1129 Stryker MC-B features a reinforced suspension system. The 120mm RMS6-L can fire all sorts of conventional ammunition fired by the 120mm M121 mortar. A typical ammunition load might include the following types of rounds: M229 Smoke, XM930 Illumination, M933 HE, M934 HE, XM934A1 HE and XM983 Illumination. During training, the M931 Practice round can be used. The complete RMS6-L mortar system has a weight of 665kg.

The RSM6-L is used with the M95 Mortar Fire Control System. The M95 MFCS consists of the following components: Weapon Pointing Device, Commander's Interface, Gunner's Display, Driver's Display Unit, Power Distribution Assembly and the Cables Mortar Fire Control System set. The M95 MFCS is connected to the vehicle's C4ISR suite and receives accurate location information from the AN/PSN-11 PLGR (or its replacement, the

DAGR). The M95 MFCS links the mortar team to the digital battlefield and different indirect fire support communication nets maintained within the SBCT (for example, the Battalion Mortar Fire Direction Net, the Company Mortar Net, or the Direct Support Battalion Fire Direction Net FM). By doing so, the M95 MFCS increases reaction speed, improves flexibility and benefits accuracy. The system allows mortar crews to send and receive digital calls for fire, determine the direction and position of their weapon, and calculate ballistic solutions. One of the major improvements provided by the M95 MFCS over prior systems is the system's capacity to receive and process fire missions on the move. Once the vehicle has stopped in its fire position, the previously received fire mission can be executed within one minute. The accuracy of the mortar is also drastically increased. The aiming and laying equipment available to the crew of the 120mm RMS6-L mortar includes the M2A2 Aiming Circle, M45A1 Bore Sight, a magnetic compass, M67 Sight Unit, and the Vehicle Motion Signal Conditioner (VMSC). Like the MC-A, the MC-B also carries a second mortar for dismounted use. M1129 Stryker MC-Bs of the battalion mortar platoon carry an additional 81mm M252 Medium Extended Range Mortar, while vehicles of the company mortar sections carry a 60mm M224 Lightweight Company Mortar System. The 60mm M224 mortar consists of an M7 baseplate and M8 baseplate, M170 bipod, 60mm M225 cannon and associated sighting equipment. The mortar can fire the following types of ammunition: M302A2 Smoke, M720 HE, M721 Illumination, M767 Illumination and M888 HE. The 81mm M252 mortar consists of the adaptor dovetail, M3A1 baseplate, 81mm M253 tube, M177 mortar mount, and associated sighting equipment. The mortar can fire: M821 HE, M899 HE, M816 IR Illumination, M819 Smoke and M853A1 Illumination. Ammunition for the mortars is stowed inside the vehicle in two racks. One of these is situated at the rear on the right side and can be configured to hold 120mm, 81mm or 60mm rounds. The rack on the left is designed to hold 120mm rounds only.


The M1129 Stryker MC-B has a combat weight of 18,764kg and a curb weight of 17,406kg. The vehicle crew consists of the vehicle commander, driver and three-man mortar crew. (Ralph Zwilling)

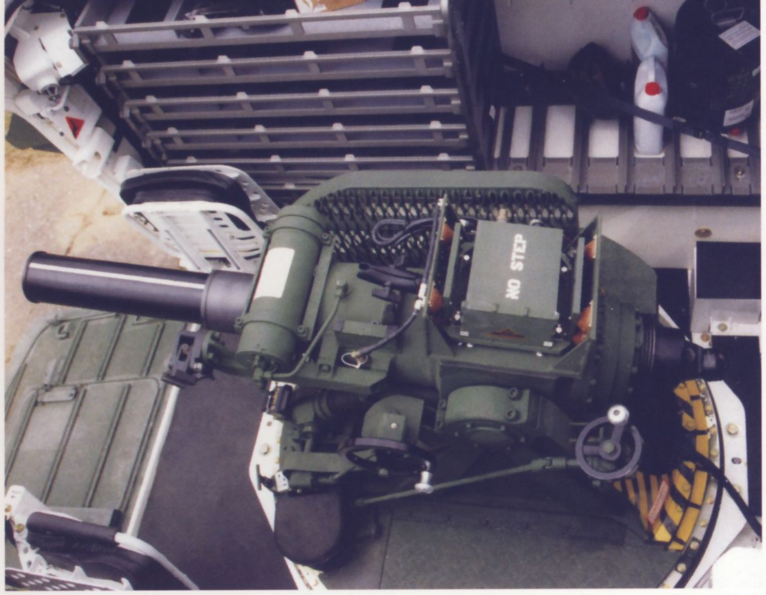

Rear view of an M1129 Stryker MC-B of the 2nd Squadron, 2nd Stryker Cavalry Regiment. While the Mortar Carrier of infantry battalions features a second mortar in addition to the 120mm RMS6-L, the brigade's RSTA unit does not have a dismounted mortar capability. However, the MC-B of the RSTA unit still features mounting points for a 60mm or 81mm mortar baseplate at the right rear of the vehicle. (Ralph Zwilling)



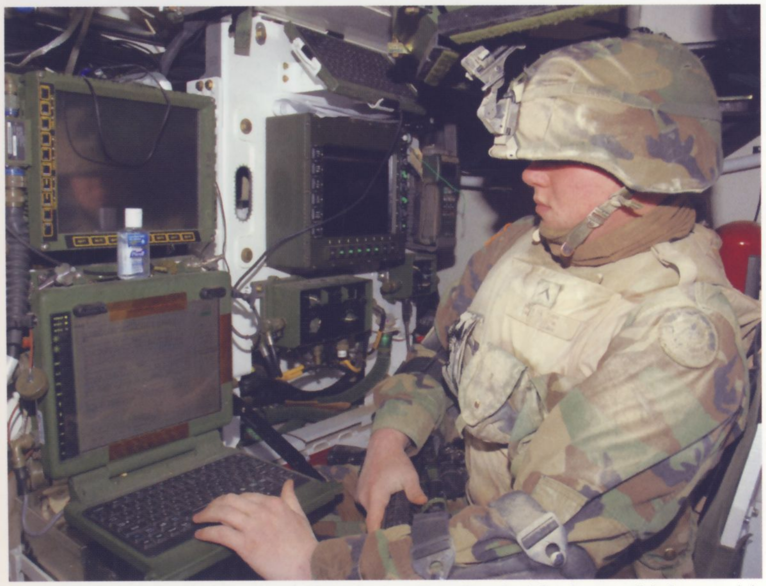
The M1129 Stryker MC-B has a curb weight of 17,406kg. The vehicle's crew consists of the vehicle commander, driver, gunner, assistant gunner and loader. Without slat armor the vehicle is 7315mm long, 2870mm wide and 2463mm high. In view is the large two-part hatch over the rear fighting compartment, as well as the commander's and squad leader's hatches. (Ralph Zwilling)

Specific technical data for the M1129 Stryker Mortar Carrier-B

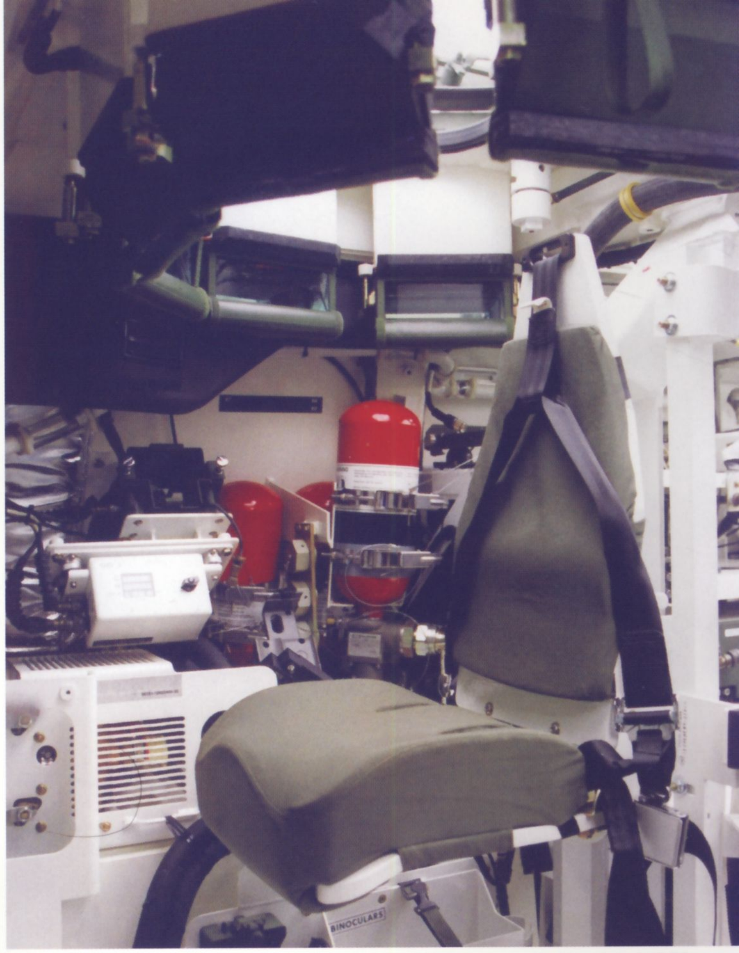
Crew:	2+3 (commander, driver, gunner, assistant gunner and loader)
Combat weight:	18,764kg
Curb weight:	17,406kg
Maximum towed load:	17,237kg
Overall length:	7315mm
Overall width:	2870mm
Overall height:	2463mm
Armament:	1x 120mm Recoiling Mortar System 6-L 1x 7.62mm M240B commander's MG 1x 60mm M224 LWCMS or 1x M252 Medium Extended Range Mortar
Ammunition for main armament:	2000 rounds of 7.62mm (M80 and M62 tracer linked) 48x 120mm mortar rounds (vehicles of RSTA squadrons carry 60 rounds) 77x 60mm or 35x 81mm mortar rounds (not on RSTA squadron vehicles) 16x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	1x AN/VRC-88F ASIP radio, 1x AN/VRC-91F ASIP radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, ETM, AN/PSN-11 PLGR (or its replacement, the DAGR), M95 Mortar Fire Control System and VIS/VIC
Other systems:	AN/VDR-2 radiacmeter, M22 ACADA, M88 ACADA, Fire Suppression System, NBC Ventilating System, self-recovery capstan winch, MRE heater, M2A2 Aiming Circle, Driver's Display Unit and AN/VAS-5 DVE



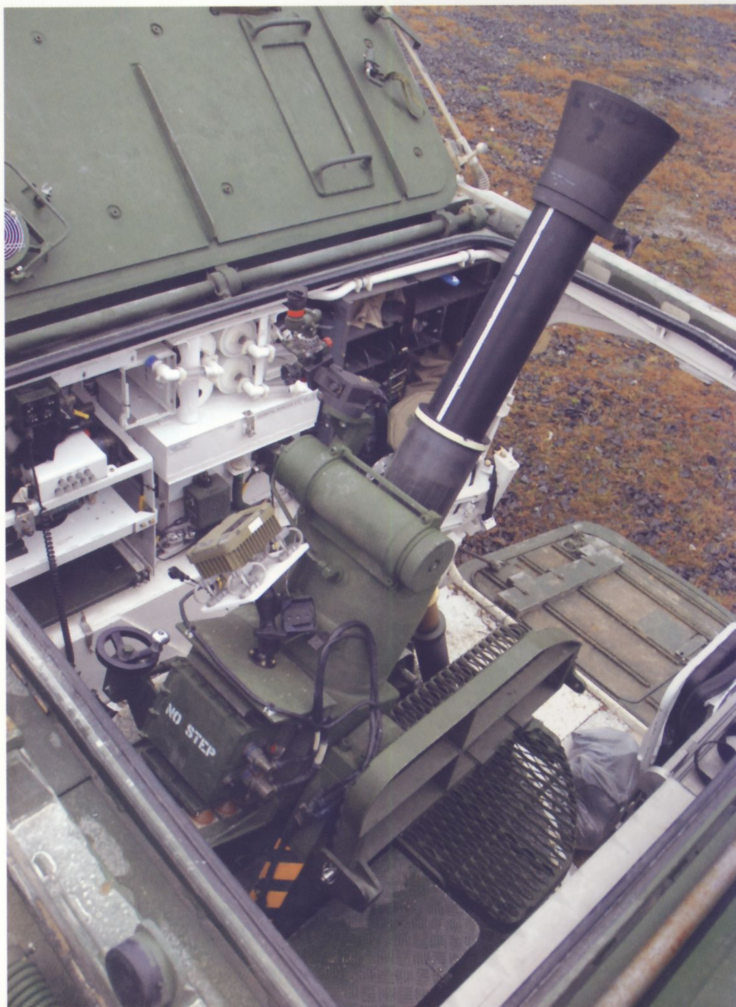
Here the 120mm RMS6-L can be seen in the traveling position. It is essentially the CARDOM system designed by the Israeli company Soltam. Visible is the floor-mounted baseplate that can be traversed 4400 mils. The bearing is set by turning the hand wheel situated at the rear of the mortar cradle. The second hand wheel on the left is used for setting the elevation range between 700 and 1486 mils. (Ralph Zwilling)



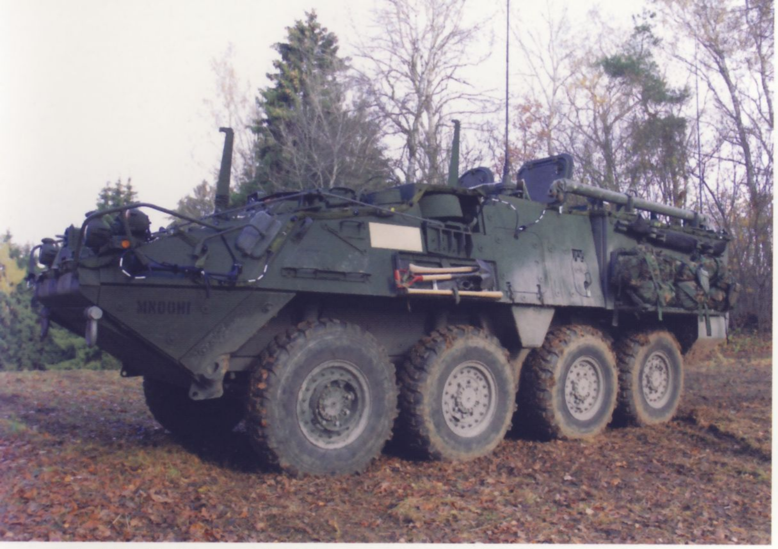
The RSM6-L is used with the M95 Mortar Fire Control System, which consists of the Weapon Pointing Device, Gunner's Display, Driver's Display Unit, Power Distribution Assembly, Cables Mortar Fire Control System set, and the Commander's Interface visible here. The M95 MFCS is connected to the vehicle's C4ISR suite and receives accurate location information from the AN/PSN-11 PLGR. It links the mortar team to the digital battlefield. (Ralph Zwilling)



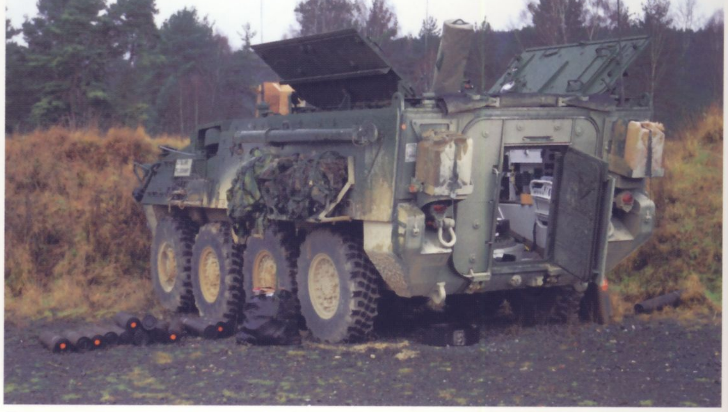
While the M1129 Stryker MC-B does not feature a Protector M151 RWS, the commander's seat is identical to that of most Stryker IAV variants. In the roof above the commander's seat is a slightly raised circular single-piece hatch. Around the hatch are seven M17E4 periscopes that provide a 360° view. (Ralph Zwilling)



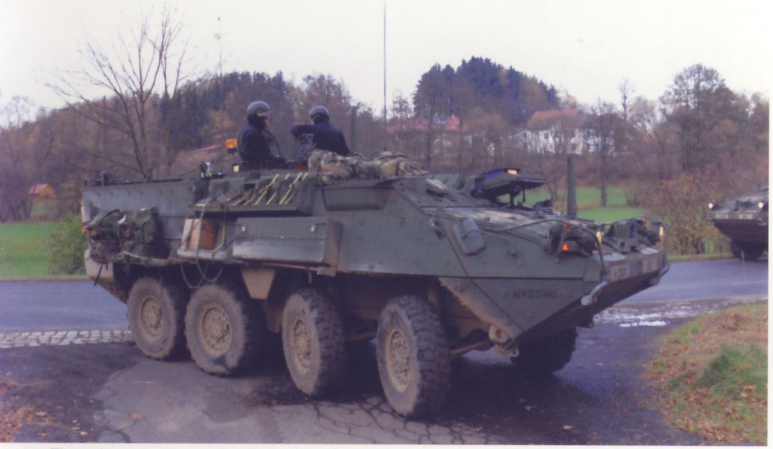
The RMS6-L can be seen elevated and ready to execute a fire mission. On the barrel (designated K-6 by Soltam) is the Blast Attenuator Device Bed. Note the Weapon Pointing Device visible above the cradle of the RMS6-L. The mortar has a maximum effective range of 6700m and a well-trained crew can achieve a burst rate of 16 rounds in one minute. (Ralph Zwilling)



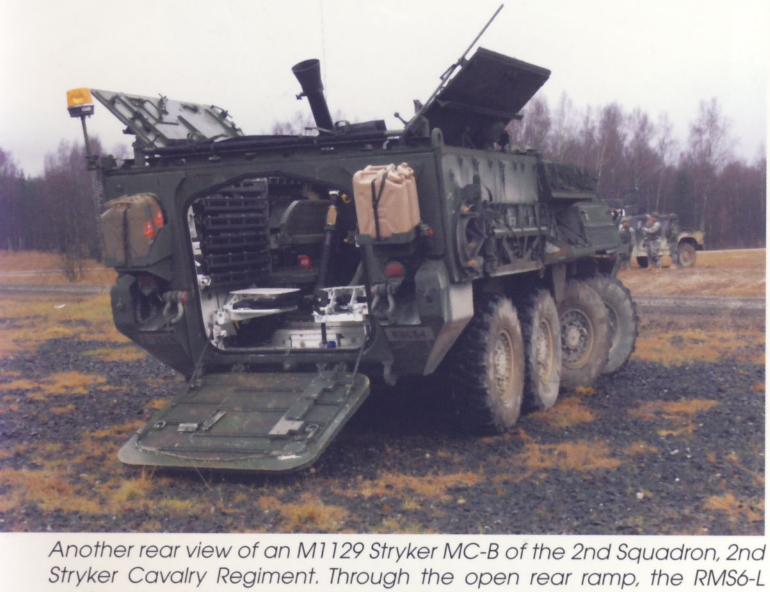
This M1129 Stryker MC-B is a mortar asset of the 2nd Stryker Cavalry Regiment. As with other Stryker IAV variants, most of the personal equipment of the crew is stowed outside on the hull. Other articles stored in brackets on the outside of the hull include recovery equipment, pioneer tools and a stretcher for evacuating wounded troops. Note the Rotzler Treibmatic TR 080 hydraulic winch. (Ralph Zwilling)



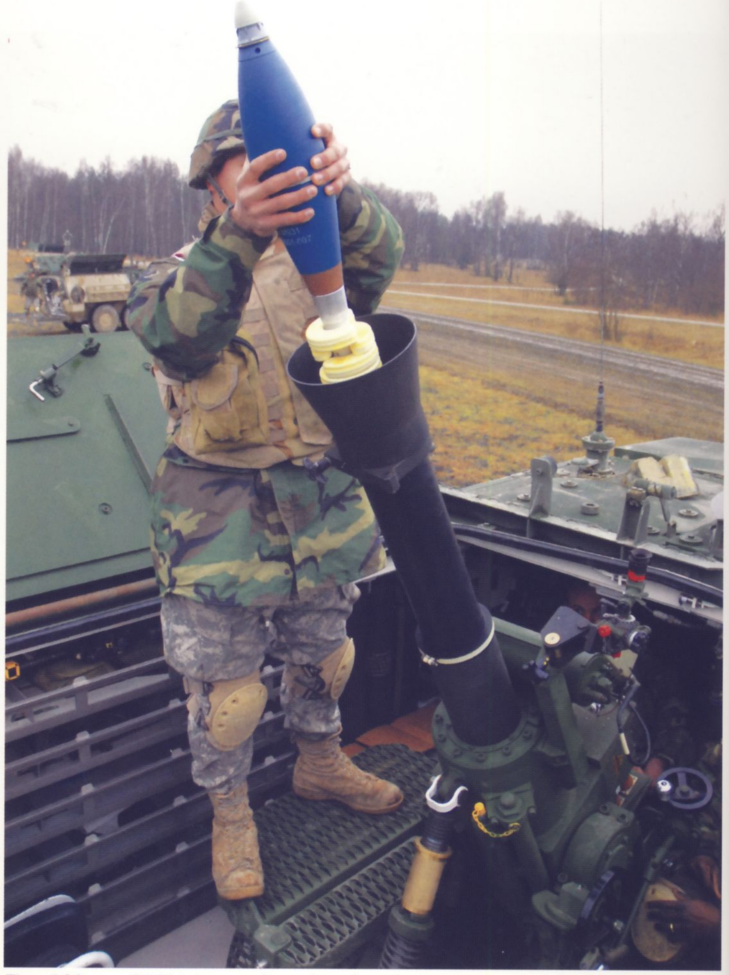
Rear view of an M1129 Stryker MC-B of the 2nd Squadron, 2nd Stryker Cavalry Regiment. Note the open door that allows the crew to leave and enter the vehicle without lowering the ramp. Note that the K-6 barrel of the RMS6-L is protected by a canvas cover. Empty ammunition containers indicate the crew has already sent some rounds downrange during live firing in Germany. (Ralph Zwilling)



The large rear hatch is closed and the RMS6-L lowered into the traveling position when on the move. Here an M1129 Stryker MC-B can be seen rushing to a new firing position during the field training exercise "Cougar Steel". The vehicle belongs to a unit of the 2nd Stryker Cavalry Regiment. (Ralph Zwilling)

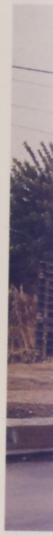


Another rear view of an M1129 Stryker MC-B of the 2nd Squadron, 2nd Stryker Cavalry Regiment. Through the open rear ramp, the RMS6-L and parts of the ammunition storage rack can be seen. Note the baseplate for the 81mm M252 Medium Extended Range Mortar stored in brackets on the rear of the hull side. (Ralph Zwilling)



The 120mm RMS6-L can fire all sorts of conventional ammunition fired by the 120mm M121 mortar. An ammunition load of an M1129 Stryker MC-B might include M229 Smoke rounds, XM930 Illumination rounds, M933 and M934 HE rounds, XM934A1 HE rounds and XM983 Illumination rounds. M1129 Strykers in infantry battalions carry a load of 48 120mm rounds, while vehicles of the RSTA squadron carry 60 rounds. During training, the M931 Practice rounds seen here are used. (Ralph Zwilling

M



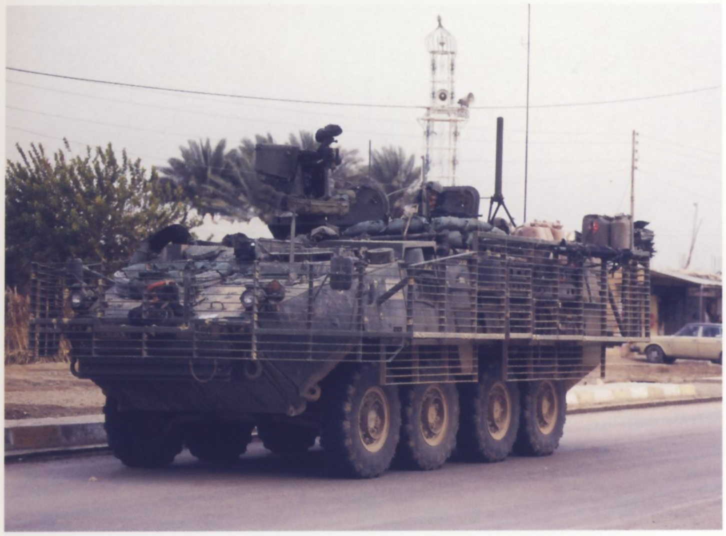
The
M11
distir
mou
2nd
Schu

This M
unit o
with s

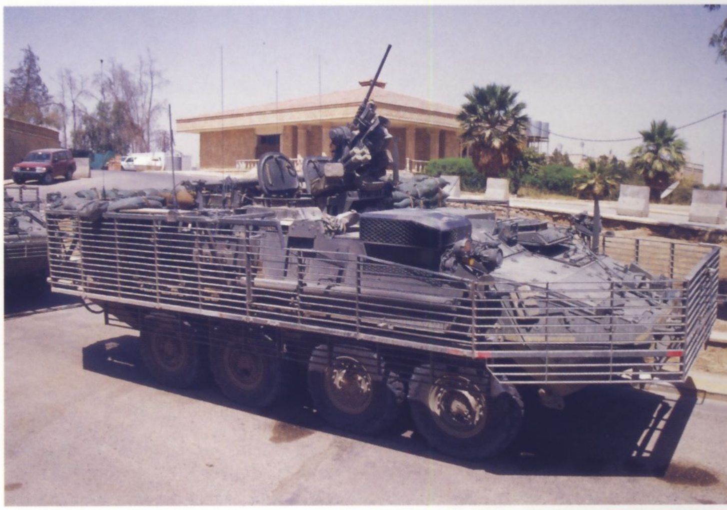
The M
Stryke
the M
does r
fitted
MOD3
and eq
situatio
Comm
Vehicle
Air Co

Mount
sophist
task. C
EPLRS
two AN
a TD

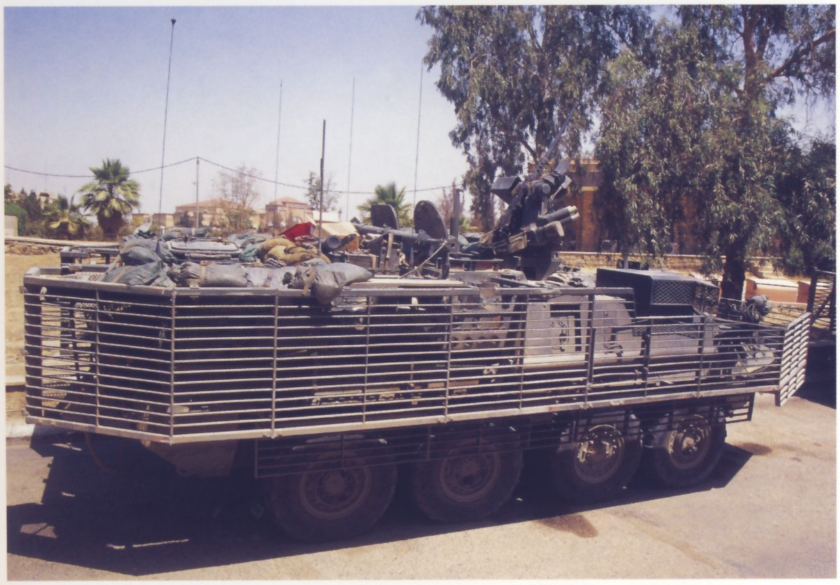
M1130 Stryker Command Vehicle



The M1130 Stryker Command Vehicle is another version based on the M1126 Stryker ICV. From the outside the vehicle can only be distinguished from the M1126 Stryker ICV by its different antenna mountings. This M1130 Stryker CV belongs to a unit of the 3rd Brigade, 2nd Infantry Division, and was seen in Iraq in December 2003. (Carl Schulze)



The M1130 Stryker CV has a crew of five that usually consists of the vehicle commander, driver, one staff officer and two workstation operators. The vehicle has a combat weight of 19,051kg and a curb weight of 15,984kg. The vehicle is 7315mm long, 2870mm wide and 2692mm high. This M1130 Stryker CV operating in Iraq belongs to the 3rd Brigade, 2nd Infantry Division and is fitted with slat armor. (Carl Schulze)

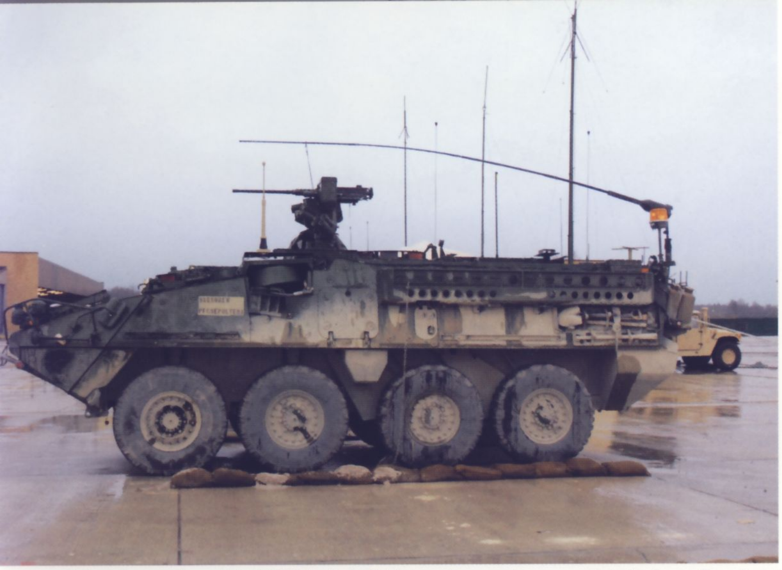


This M1130 Stryker CV was seen in Mosul in August 2005. The vehicle belongs to a unit of the 1st Brigade, 25th Infantry Division. Like all Stryker IAVs in Iraq, it is fitted with slat stand-off armor. (Carl Schulze)

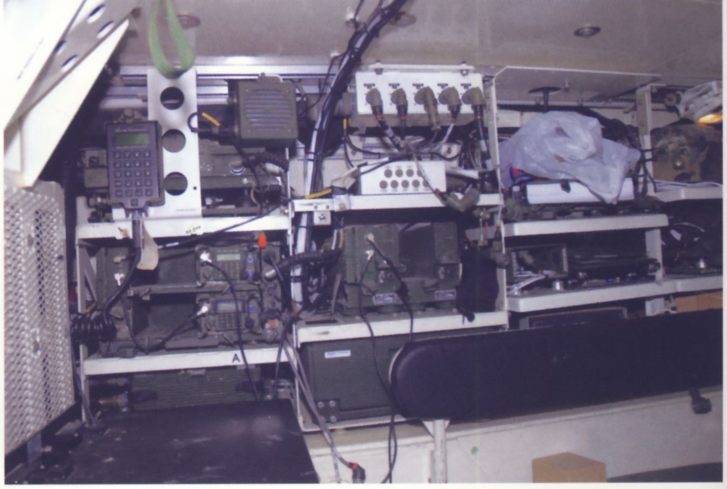
The M1130 Stryker Command Vehicle is a mobile command post version of the Stryker IAV, and is thus stuffed with C2 equipment. The vehicle is nearly identical to the M1126 Stryker ICV except that it features a series of external antenna mounts and does not incorporate mission-related infantry equipment. The M1130 Stryker CV is fitted with the M151 Protector RWS mounting a 12.7mm M2 MG or a 40mm Mk.19 MOD3 automatic grenade launcher. The interior of the M1130 Stryker CV is designed and equipped to provide necessary facilities for commanders to lead forces in a hostile situation. The M1130 Stryker CV is used in these configurations: Brigade Commander Command Vehicle, Battalion Commander Command Vehicle, S3 TAC Command Vehicle, RSTA Squadron Commander Command Vehicle, Battalion S3, and Tactical Air Control Party/USAF.

Mounted in the rear compartment of the M1130 Stryker Command Vehicle is the sophisticated mission-related C2 equipment. Its configuration depends on the vehicle's task. One possible configuration is to have on the right side an AN/VSQ-2 (V) 1 EPLRS, AN/UYK-128 FBCB2, NTDR (to be replaced by a Joint Tactical Radio Set), two AN/VRC-91F ASIP radios, two AN/VRC-92F ASIP radios, ETM CPU, ether hubs, a TD 1456/VRC FHMUX, and AN/PSC-5 Spitfire SOTM. The AN/PSC-5 Spitfire SATCOM on the Move System is a Demand Assigned Multiple Access line-of-sight and tactical satellite communications terminal. The Near-Term Digital Radio (NTDR) system is a brigade-and-below mobile packet radio network. It consists of a Network Management Terminal and up to 400 radios can be connected to the system to serve a 20x30km area. Network management is performed by the NMT. The brigade network can interoperate with other networks through back-to-back NTDRs or through routers in the tactical internet. The radios of the Advanced Single Channel Ground and Airborne Radio System Improvement Program (ASIP) feature state-of-the-art technology. The single channel or channel hopping, binary or analog, frequency-modulated ASIP radios allow secure voice and data communication. The radios operate in the 30 to 87.975MHz frequency range and feature an internal encryption module and displays that are compatible with night vision goggles. The TD 1456/VRC FHMUX antenna multi-coupler allows four nets to operate through one antenna, thus reducing the "antenna parasitic effect" and reducing collocated net-to net interference.

In the right interior storage box are an AN/PVS-6 MELIOS, a pair of 7x50 binoculars, a secure telephone, two AN/PRC 119F radio sets, and three sets of night vision goggles. On the left side close to the staff officer's seat is an AN/UXC-10 facsimile machine, an analog phone and another AN/PRC-119F. Along the left sidewall in the rear compartment are workstations for the two operators. These are an AN/GYK-3NA FOS 1 ASAS/FOS FCS workstation, as well as an AN/TYQ-45A and AN/PYQ-6 Maneuver Control System workstation. Also mounted in this area are the printer station with an OL-XX/TYZ laser printer and an AN/PRC-150(C) HF radio. In a storage box under the workstation seat are an AN/PSG-9V1 digital data set handheld terminal, a TA-1PT telephone set and other equipment. On the outside of the M1130 Stryker CV's hull are most of the ammunition, vehicle recovery equipment, camouflage equipment, tripod for the crew-served weapon, and personal equipment of the troops. Mission-related equipment stored outside on the hull of the M1130 Stryker CV includes an OE 254 GRC antenna assembly, two towing hooks for cables and reel equipment (RL-39 Reeling Machine with handle and WD-1/TT DR-8 1/2 KM cable telephone).



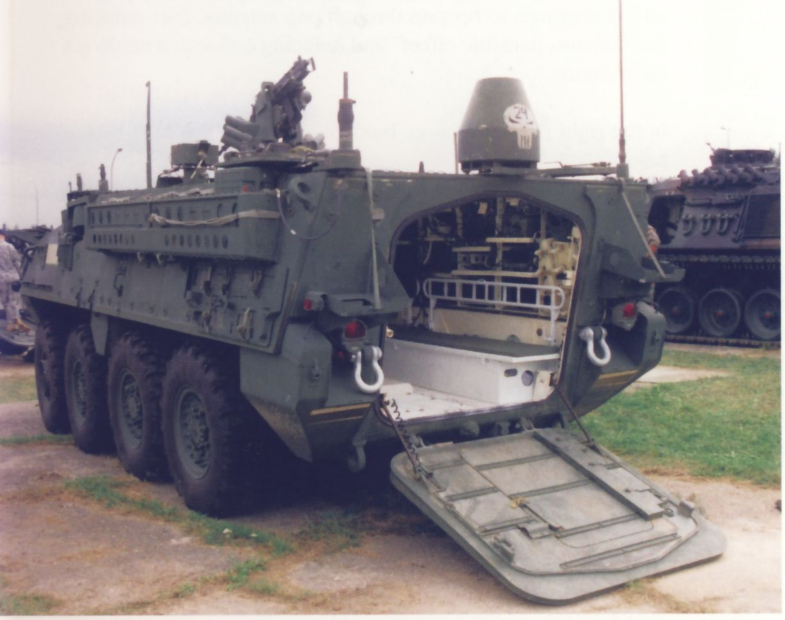
Side view of an M1130 Stryker CV configured as a vehicle for a Tactical Air Control Party/USAF. It can only be distinguished from the M1126 Stryker ICV by its antennas. Note the folded-up storage baskets that can be unfolded if required and used to store the crew's personal equipment. (Ralph Zwilling)



Inside the M1130 Stryker CV on the right side behind the commander's station, parts of the C4ISR equipment are mounted. This includes the AN/VSQ-2 (V) 1 EPLRS, the AN/UYK-128 FBCB2, NTDR, two AN/VRC-91F ASIP radios, two AN/VRC-92F ASIP radios, ETM CPU, Ether Hub, TD 1456/VRC FHMUX, and AN/PSC-5 Spitfire SOTM. (Ralph Zwilling)

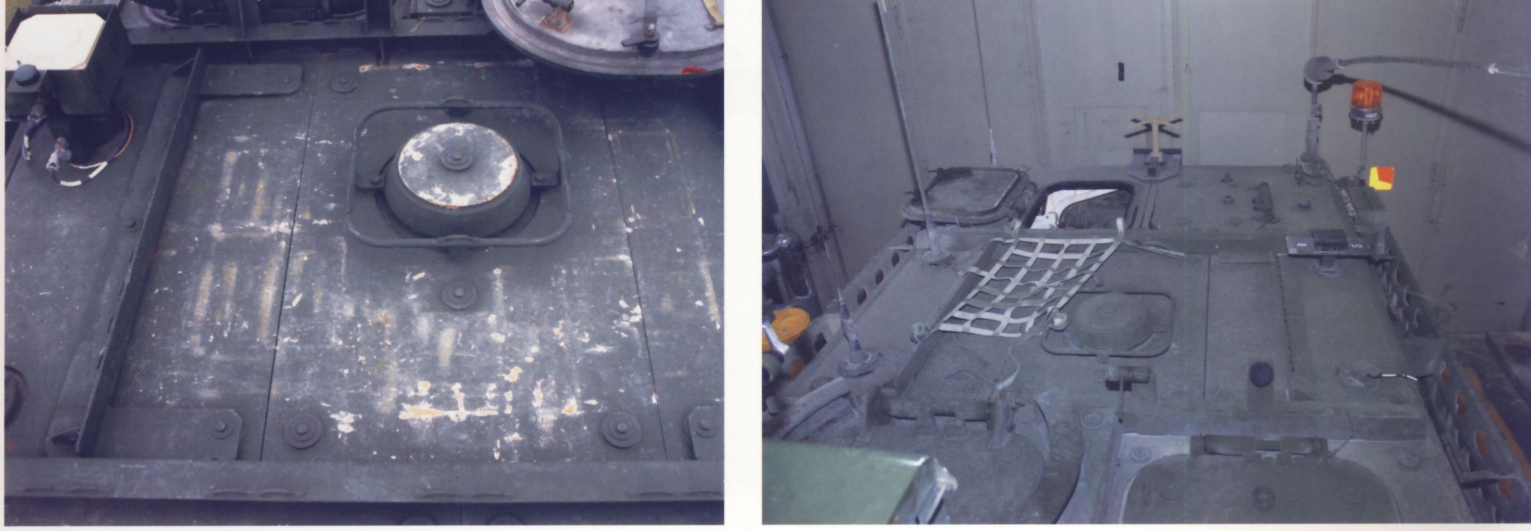
Specific technical data for the M1130 Stryker Command Vehicle

Crew:	2+3 (commander, driver, one staff officer and two workstation operators)
Combat weight:	19,051kg
Curb weight:	15,984kg
Maximum towed load:	17,080kg
Overall length:	7315mm
Overall width:	2870mm
Overall height:	2692mm
Armament:	1x 12.7mm M2 MG or 1x 40mm Mk.19 MOD3 automatic grenade launcher, 1x Javelin Command Launch Unit, 1x M136 AT-4 4x M6 66mm four-tube smoke discharger systems
Ammunition for main armament:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 480 rounds of 40mm (M430 HEDP) 16x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	1x AN/PSC-5 Spitfire SOTM, AN/TYQ-45A and AN/PYQ-6 MCS, AN/TYQ-93 (V) 3 ASAS, AN/GYK-37 (V) 4 FOS, 2x AN/VRC-91F ASIP radios, 2x AN/VRC-92F ASIP radios, 3x portable AN/PRC-119F ASIP radios, 1xNTDR, 1x AN/PRC-150(C) HF radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, ETM, AN/PSN-11 PLGR/DAGR and VIS/VIC
Other systems:	Battery Chargers (COTM), Network Laser Printer Version 2 (V2)

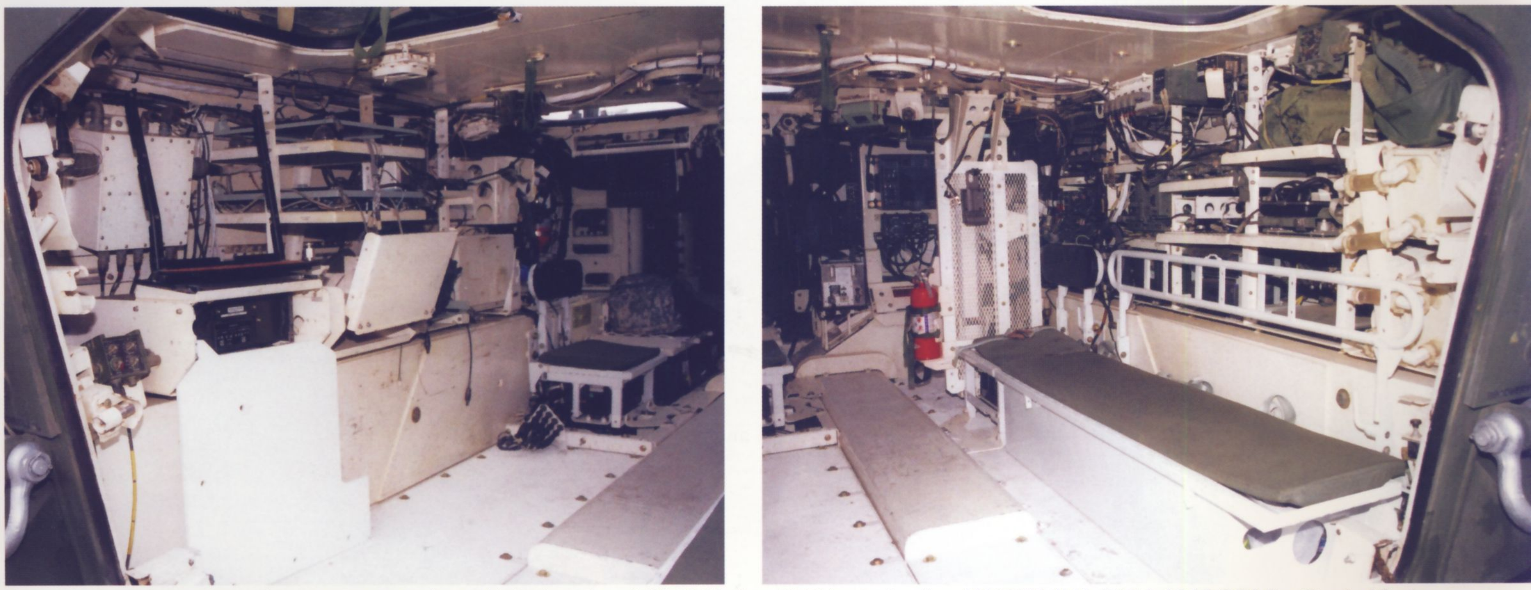


Rear view of an M1130 Stryker CV, with its large power-operated rear ramp dropped. Note the antenna mounts on the vehicle roof belonging to the vehicle's impressive radio communications suite. (Ralph Zwilling)

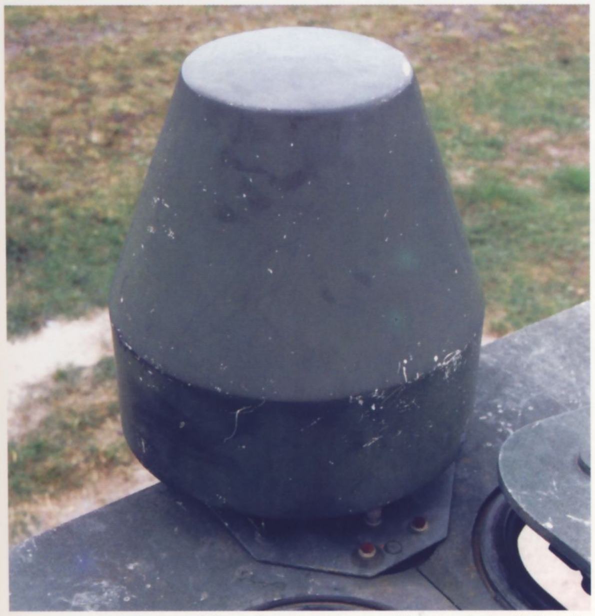
The M1130 Command Vehicle is used in the following configurations: Brigade Commander Command Vehicle, Battalion Commander Command Vehicle, S3 TAC Command Vehicle, RSTA Squadron Commander Command Vehicle, Battalion S3, and Tactical Air Control Party/USAF. The pictured vehicle of the 2nd Squadron, 2nd Stryker Cavalry Regiment, is configured as a Tactical Air Control Party/USAF vehicle. (Ralph Zwilling)



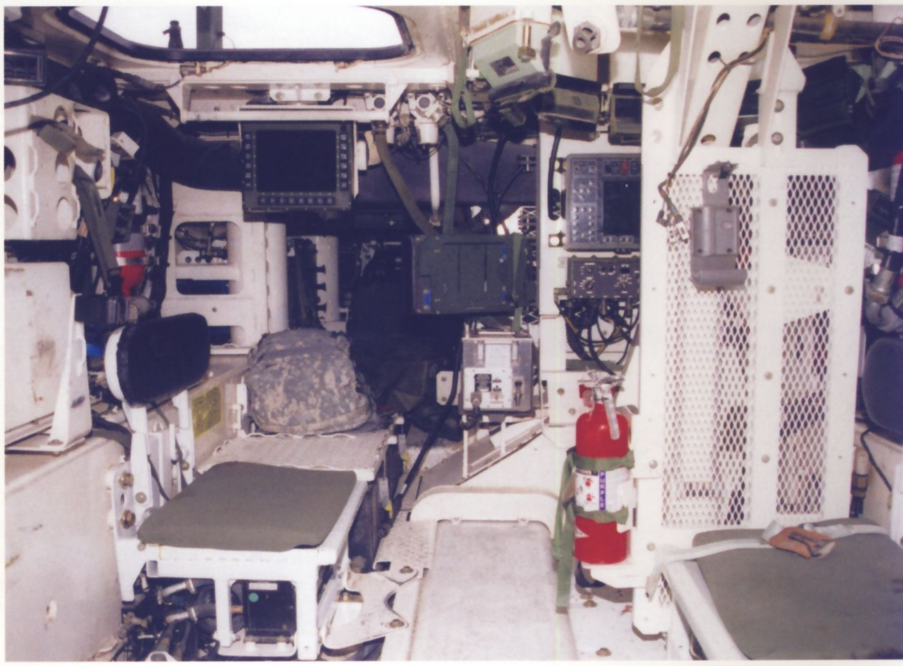
View of the roof of the rear compartment of an M1130 Stryker CV. During operations, the area is used to store the windshield kit for the driver as well as spare ammunition for the 12.7mm M2 MG mounted in the M151 RWS. A ventilator for the rear compartment is under the circular cover with the brush guard. (Ralph Zwilling)



These two pictures show the rear compartment interior of an M1130 Stryker CV. It includes the AN/GYK-3NA FOS 1 ASAS/FOS Fire Control System workstation as well as an AN/TYQ-45A and AN/PYQ-6 Maneuver Control System workstation, a printer station with an OL-XX/TYZ laser printer, and an AN/PRC-150(C) HF radio. (Ralph Zwilling)



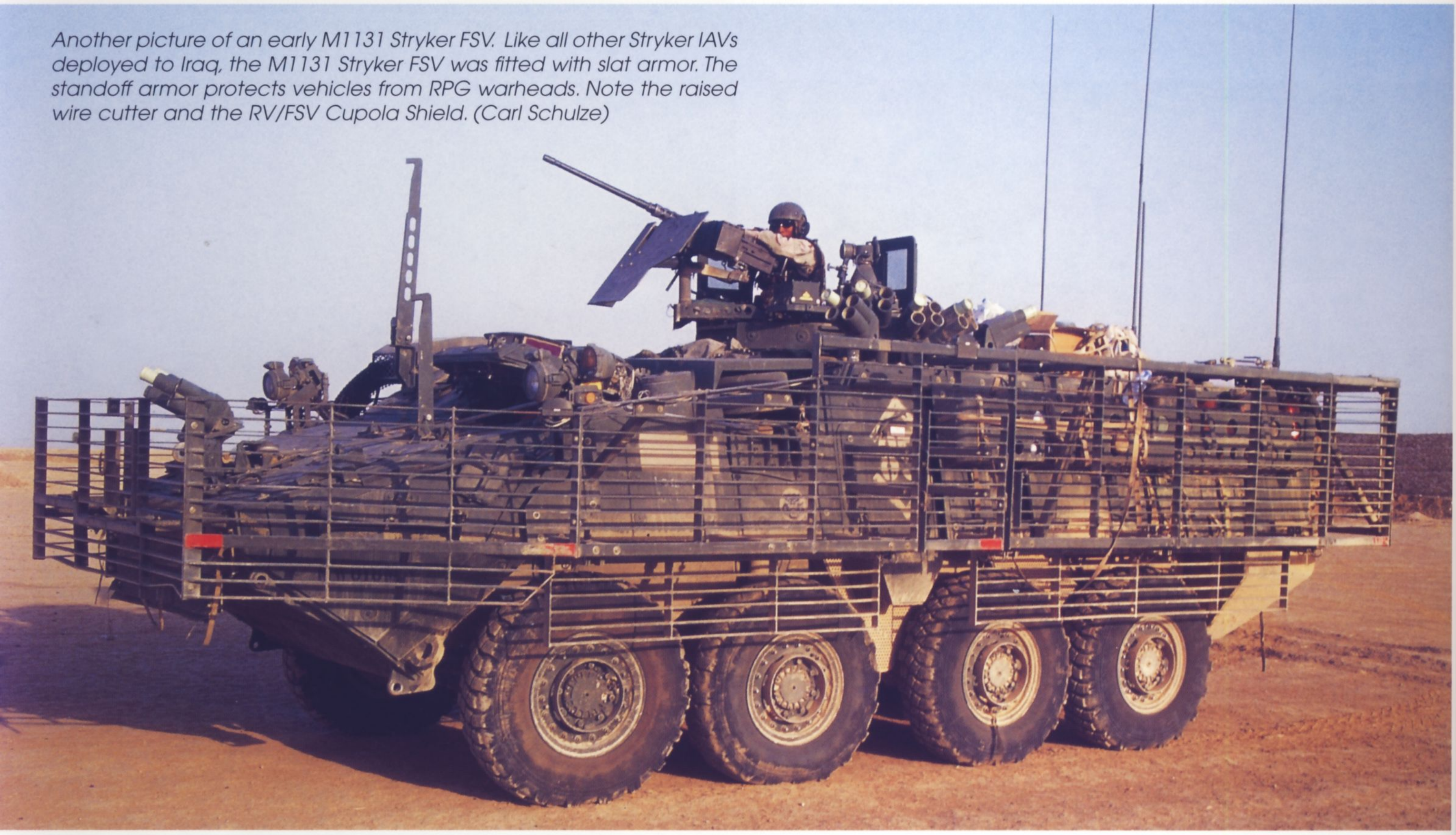
Close-up picture of the Conical Logarithmic Spiral Mobile (CLSM) antenna. It is mounted centrally at the rear of the M1130 Stryker CV above the rear ramp, and is connected to the AN/PSC-5 Spitfire SOTM (SATCOM-On-The-Move) system. (Ralph Zwilling)



This is where the squad leader is seated in an M1130 Stryker CV. Note the squad leader's VDT and the FCU for the M151 RWS. The commander's FBCB2 access terminal is not mounted here but its mounting bracket can be seen. (Ralph Zwilling)

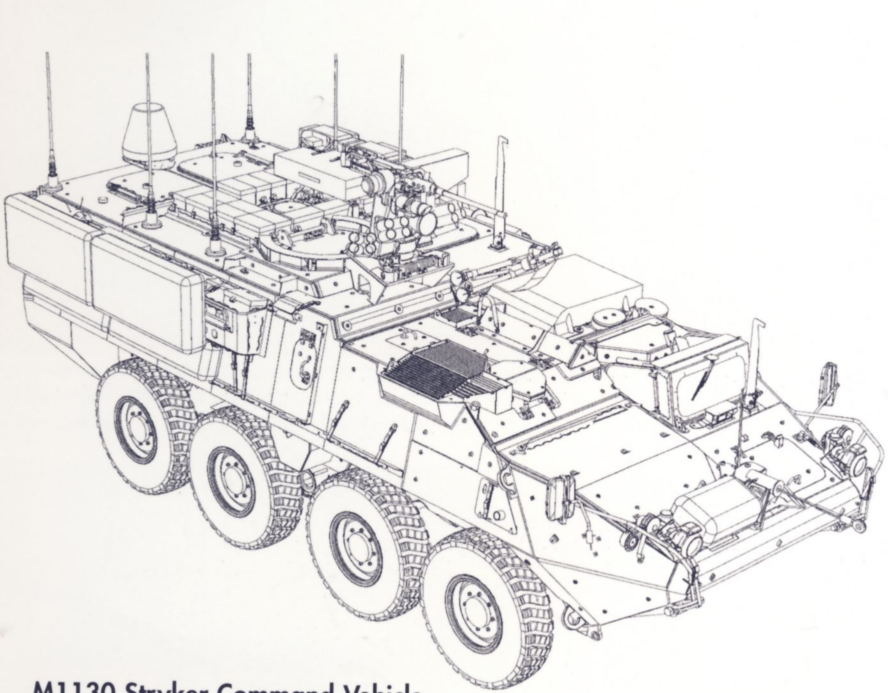
M1131 Stryker Fire Support Vehicle

Another Stryker IAV variant is the M1131 Stryker Fire Support Vehicle, which is used by Fire Support Teams of the SBCT. However, the vehicle is in many ways identical to the M1127 Stryker Reconnaissance Vehicle. The M1131 Stryker FSV provides the on-board Fire Support Team (FIST) with the capability of automating command and control functions, performing fire support planning, and directing, coordinating, and executing fire support missions from indirect fire assets. The crew of the M1131 Stryker consists of the driver, vehicle commander (who also operates the FS3 sensor), mission specialist, and one additional crewmember for dismounted operations. The initial version of the M1131 Stryker FSV was equipped with the AN/TAS-4 and AN/TVQ-2 Ground/Vehicular Laser Locator Designator (G/VLLD) that incorporated a laser rangefinder, near-infrared laser designator, and a FLIR imaging sensor. The G/VLLD was mounted on the Power Assisted Commander's Cupola. The G/VLLD is capable of designating stationary and moving vehicle-sized targets for terminal homing ammunition such as the 155mm M172 Copperhead artillery round, AGM-114 Hellfire missile or laser-guided bombs. However, the AN/TAS-4 and AN/TVQ-2 were replaced by a more sophisticated system - the Fire Support Sensor System (FS3) Mission Equipment Package (MEP) with attached Laser Designator Module (LDM). The FS3 is a specialized system variant of the LRAS3 and at first glance both systems look identical. The FS3 provides FISTs with the capability of detecting, recognizing, locating and designating targets. The system also allows troops to send digital self/target location data to fire support computers. The FS3 enables the vehicle crew to engage targets with a variety of conventional and precision GPS and laser-guided munitions at extended ranges with increased accuracy. The FS3 can be operated day or night.

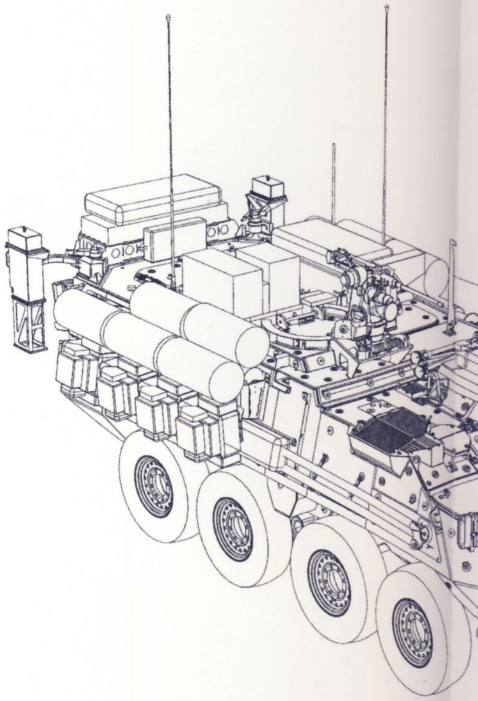

Another picture of an early M1131 Stryker FSV. Like all other Stryker IAVs deployed to Iraq, the M1131 Stryker FSV was fitted with slat armor. The standoff armor protects vehicles from RPG warheads. Note the raised wire cutter and the RV/FSV Cupola Shield. (Carl Schulze)

Specific technical data for the M1131 Stryker Fire Support Vehicle

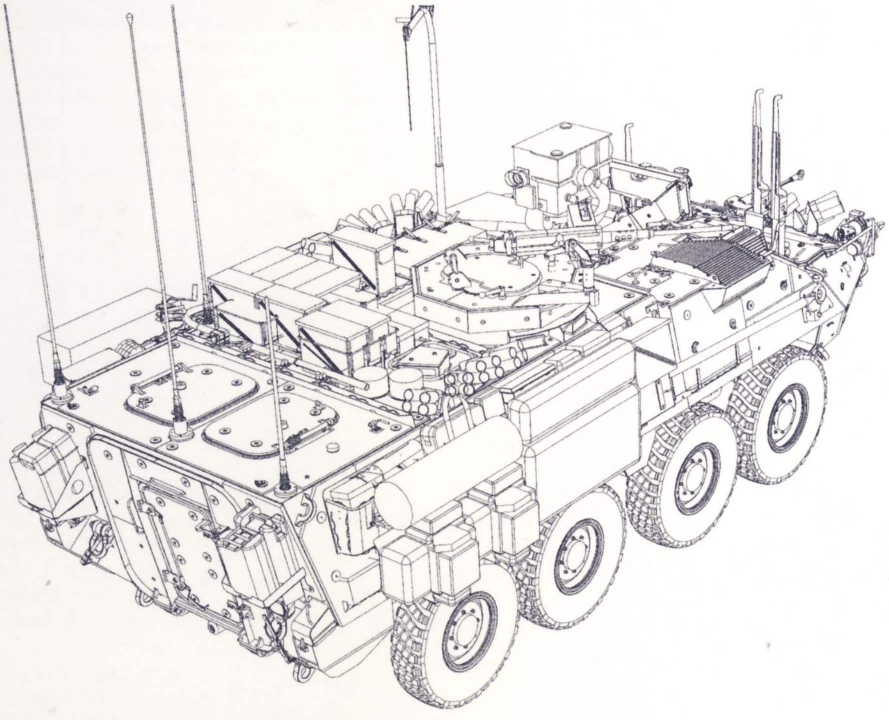
Crew:	2+2 (commander/sensor operator, driver, mission specialist and one additional crewmember)
Combat weight:	17,321kg
Curb weight:	16,213kg
Maximum towed load:	22,680kg
Overall length:	7304mm
Overall width:	3804mm
Overall height:	3308mm
Armament:	1x 12.7mm M2 MG 12x M6 66mm four-tube smoke discharger systems
Ammunition for main armament:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 48x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	Fire Support Sensor System (FS3) Mission Equipment Package (MEP) with attached Laser Designator Module (LDM), Forward Observer System (FOS), Standalone Computer Unit (SCU) with Remote Display Unit (RDU), 2x AN/VRC-91F ASIP radios, 1x AN/VRC-88F radio, 2x portable AN/PRC-119F ASIP radios, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, Embedded Training Module, AN/PSN-11 PLGR/DAGR and VIS/VIC
Other systems:	M2A2 Aiming Circle, Lightweight Video Reconnaissance System (LVRS), AN/PYQ-3 (V) 1 Computer System, Targeting Station Control Panel (TSCP)



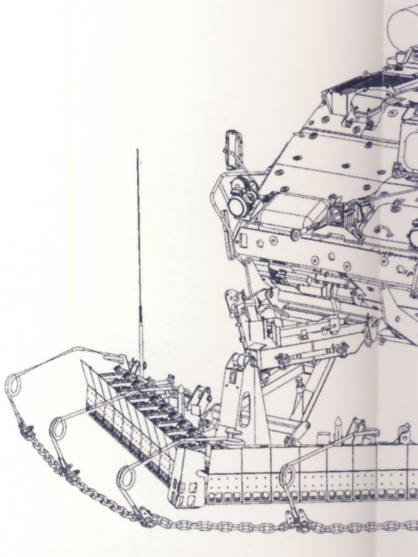
M1130 Stryker Command Vehicle



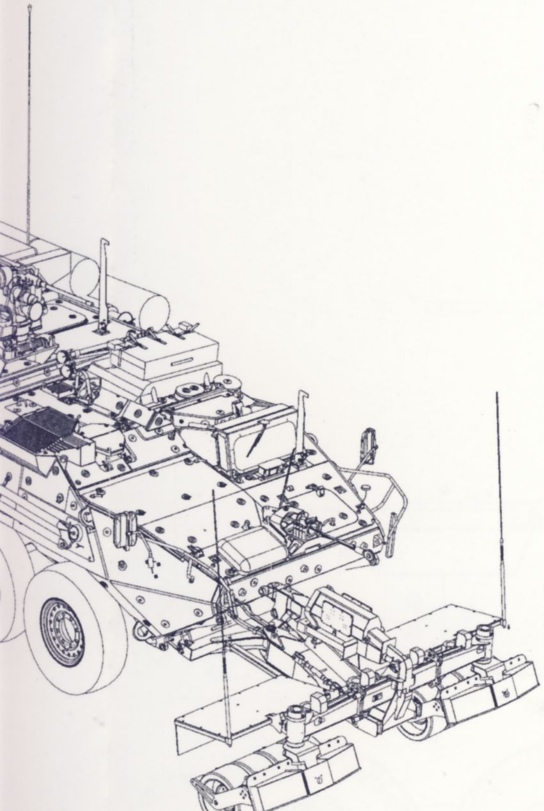
M1132 Stryker Engineer Squad Vehicle - LW



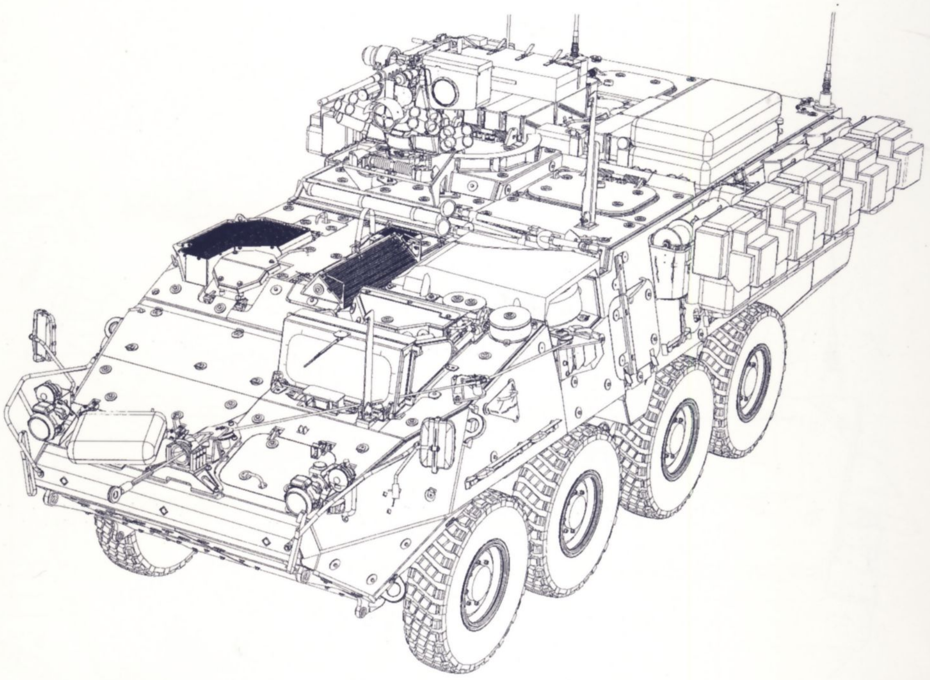
M1131 Stryker Fire Support Vehicle



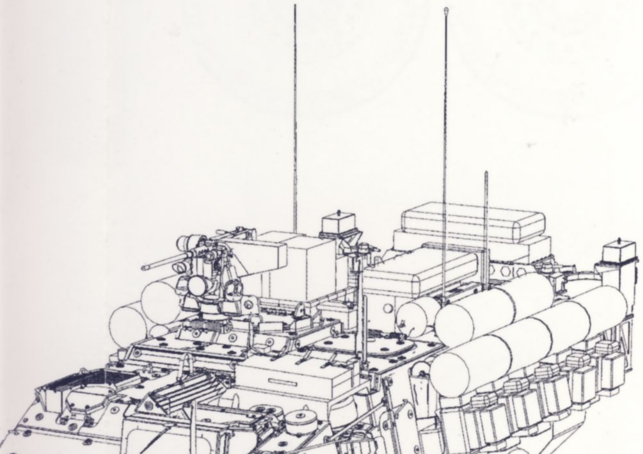
M1132 Stryker Engineer Squad Vehicl



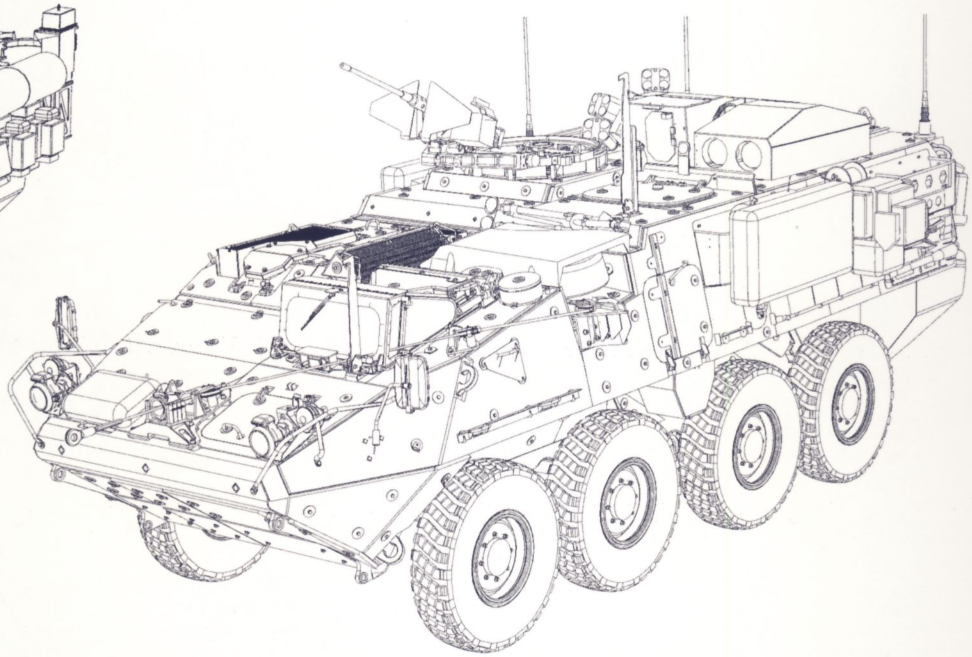
Vehicle - LWMR



M1126 Stryker Infantry Carrier Vehicle

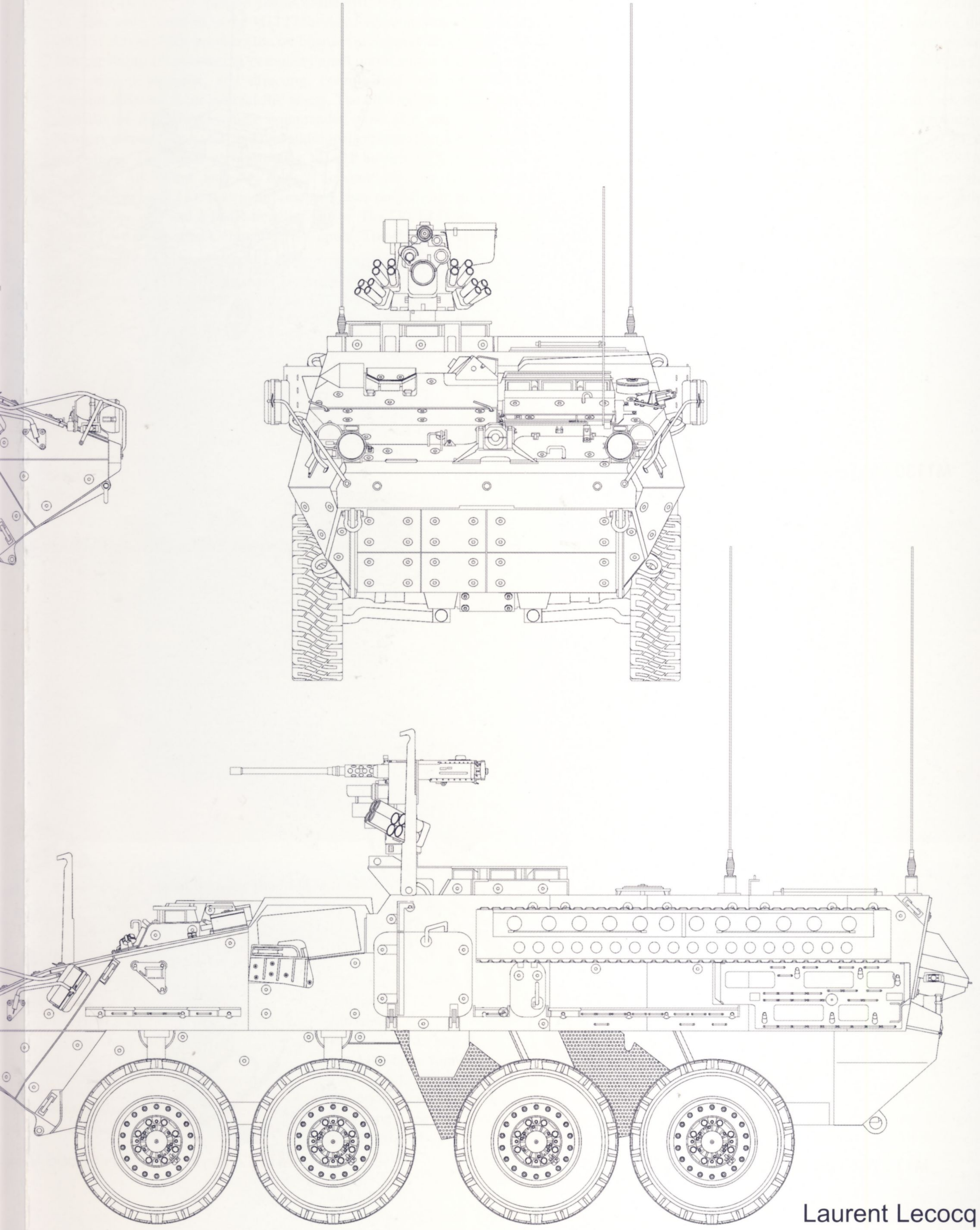


Squad Vehicle - SMP



M1134 Stryker Anti-Tank Guided Missile Vehicle

Line drawings courtesy of GDLS



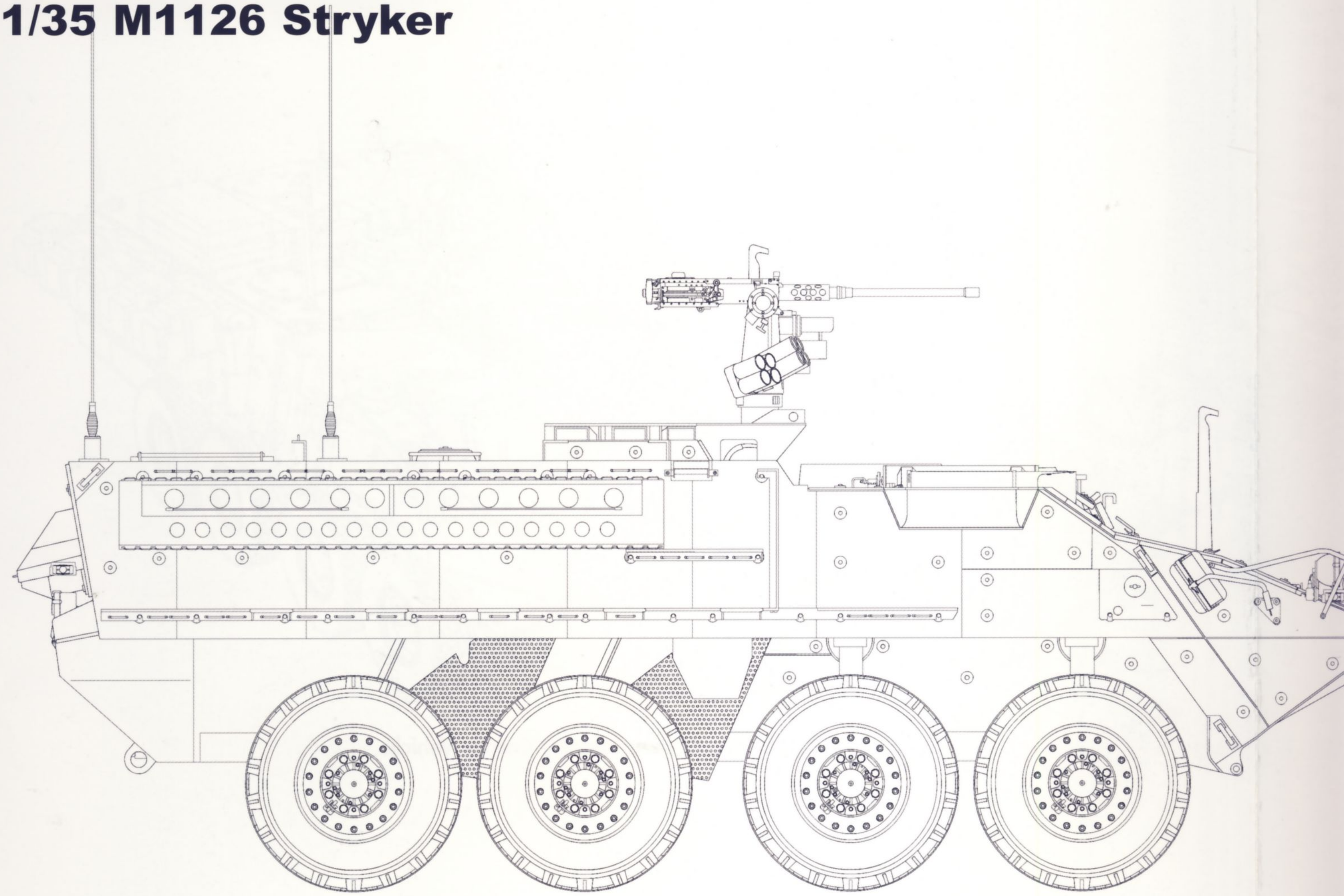
Laurent Lecocq

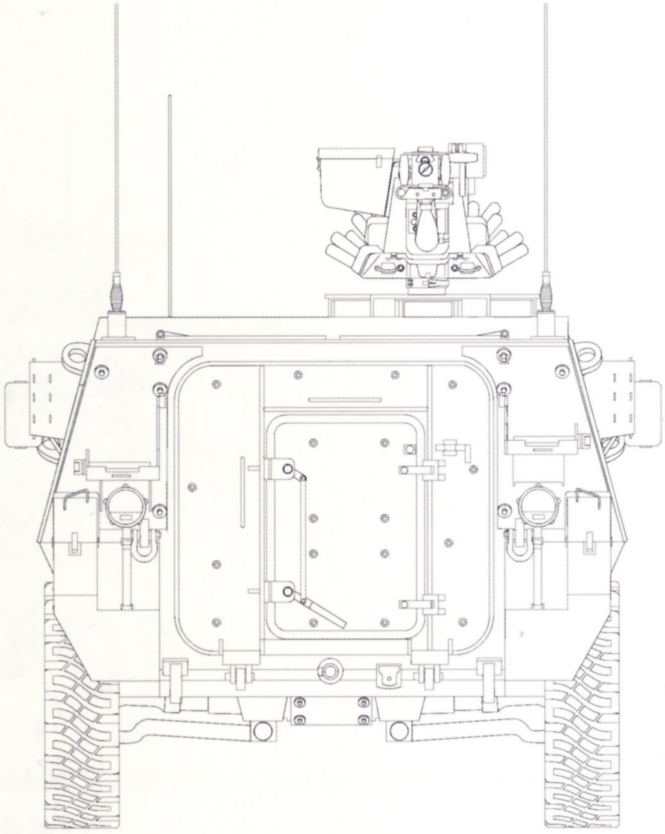
Ea
Ba
ca

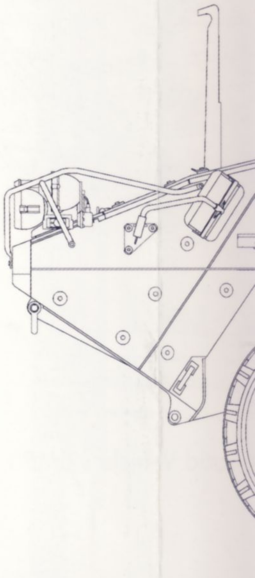
Clos
Stry
arm
Ligh
earl
two

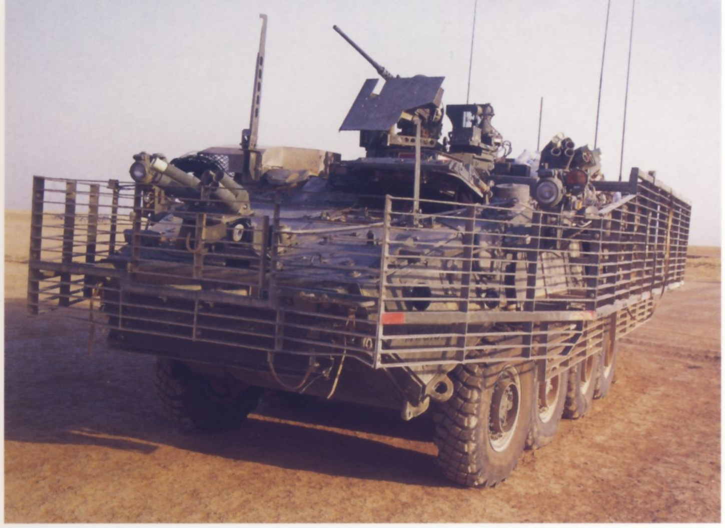
The
equi
AN/T
inco
near
FLIR
the
Cupo
desig
vehic
homi
155m
rounc
laser-
Stryke
3rd B
(Carl

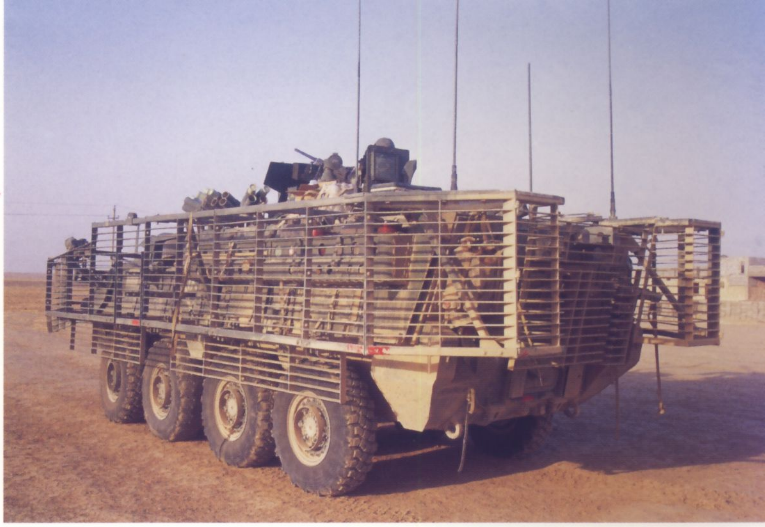
1/35 M1126 Stryker



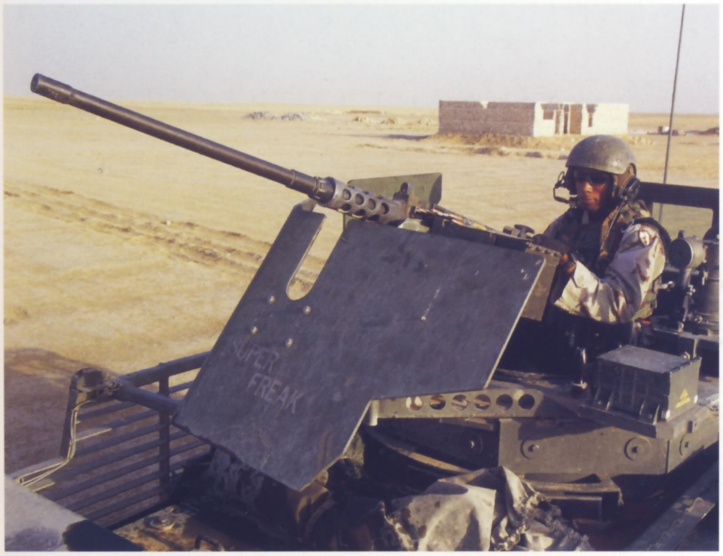




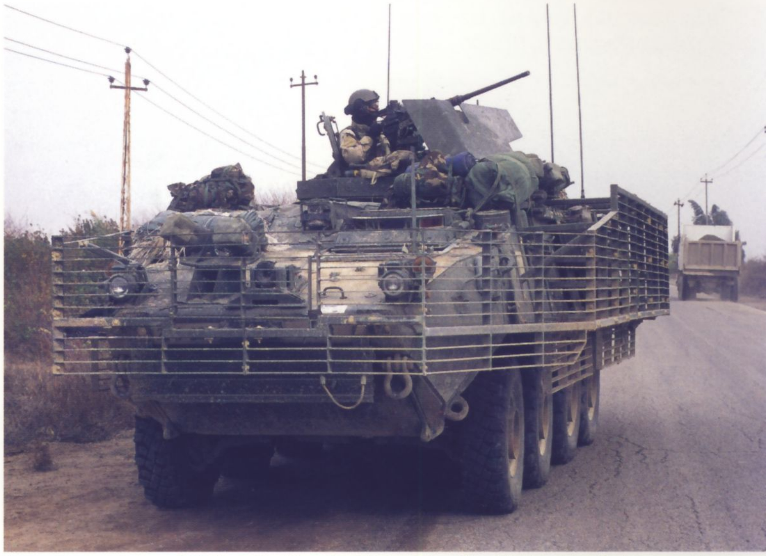




Each company-sized combat element within the SBCT is equipped with an M1131 Stryker FSV. Here an M1131 of D Company, 52nd Infantry Battalion, can be seen during an operation somewhere south of Mosul in August 2005. The M1131 Stryker FSV provides the on-board FIST with the capability of executing fire support missions with indirect fire assets. (Carl Schulze)

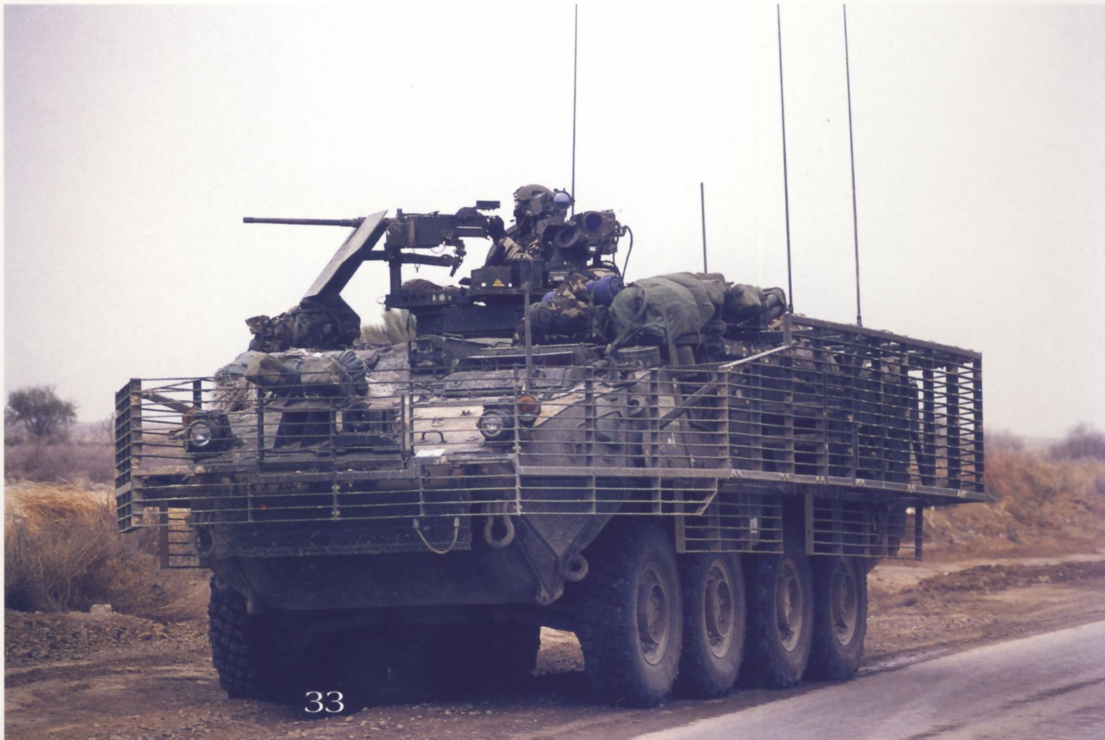


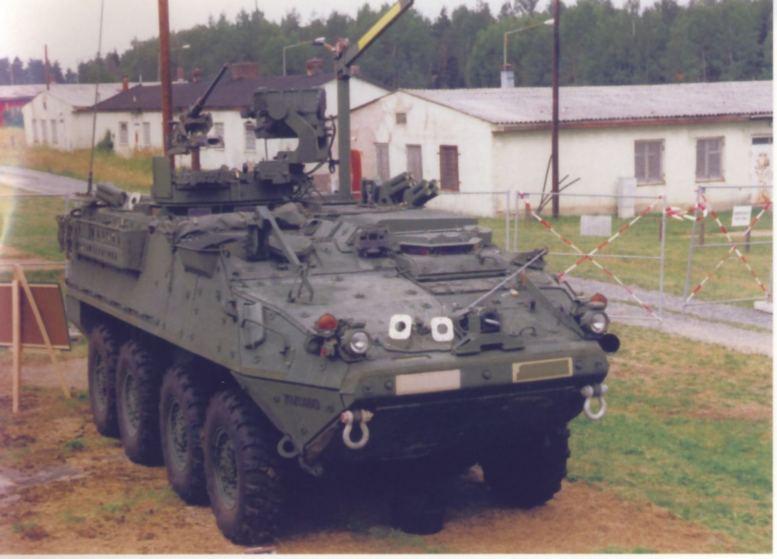
Close-up of the Power Assisted Commander's Cupola of an M1131 Stryker FSV of D Company, 52nd Infantry Regiment. This unit is the anti-armor company of the 1st Brigade, 25th Infantry Division "Tropical Lightning". The cupola is fitted with the RV/FSV Cupola Shield. In the early RV version fitted with the AN/TAS-4 and G/VLLD, only one of the two shield parts could be mounted. (Carl Schulze)



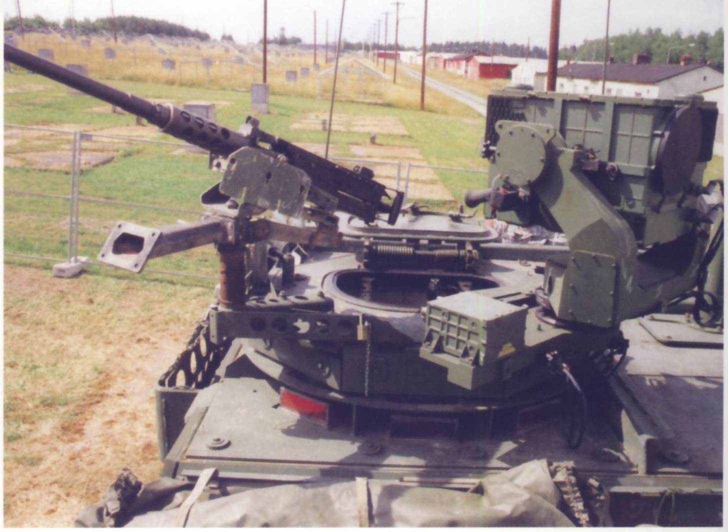
Iraq, December 2003, with the 3rd Brigade, 2nd Infantry Division - the first time ever an SBCT had deployed to a war zone. Here, an M1131 Stryker FSV can be seen during an operation somewhere north of the insurgent hot spot of Samarra. In order to protect Stryker IAVs from RPGs, all deployed vehicles were fitted with slat armor. (Carl Schulze)

The first M1131 Stryker FSVs were equipped with the AN/TAS-4 and AN/TVQ-2 G/VLLD, which incorporates a laser rangefinder, near-infrared laser designator, and a FLIR imaging sensor. It is mounted on the Power Assisted Commander's Cupola and is capable of designating stationary and moving vehicle-sized targets for terminal homing ammunition such as the 155mm M172 Copperhead artillery round, AGM-114 Hellfire missiles or laser-guided bombs. This M1131 Stryker FSV belongs to a unit of the 3rd Brigade, 2nd Infantry Division. (Carl Schulze)

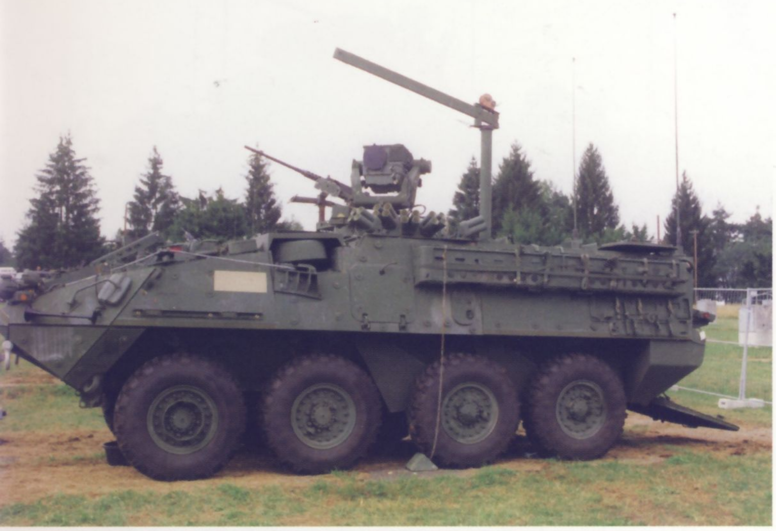




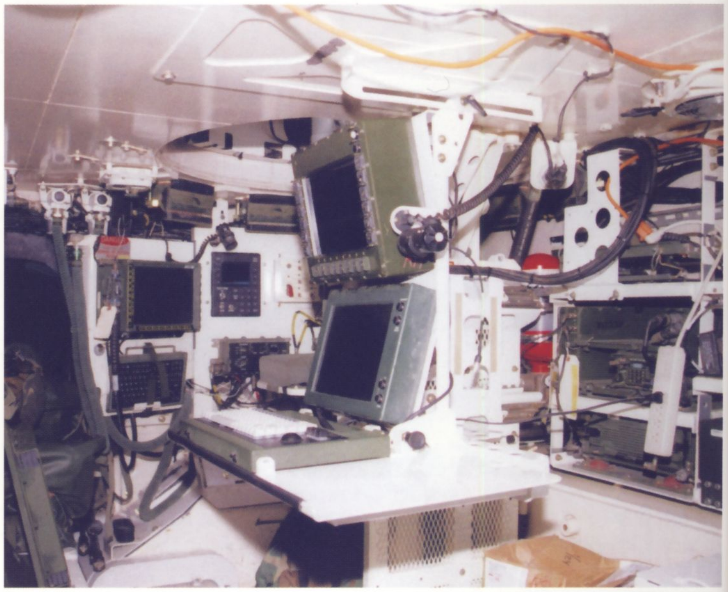
The later variant of the M1131 Stryker FSV is equipped with the FS3, which replaced the less capable AN/TVQ-2 G/VLLD in the vehicle's MEP. Early-production M1131 Stryker FSVs were upgraded with the FS3. The pictured vehicle belongs to the Germany-based 2nd Stryker Cavalry Regiment. (Ralph Zwilling).



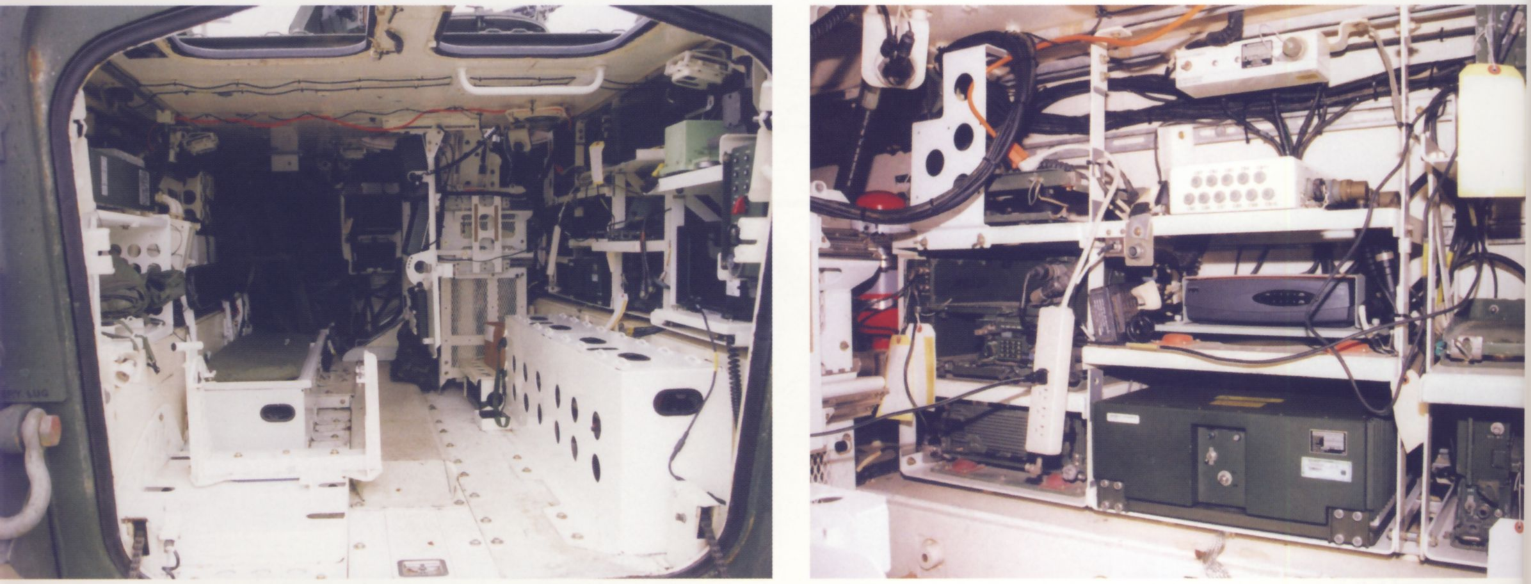
This picture shows details of the power-assisted 360° traversable commander's cupola of the M1131 Stryker FSV. It is identical to that of the M1127 Stryker Reconnaissance Vehicle. Next to the pintle mount for the 12.7mm M2 MG is the mount for the FS3. The FS3 is a specialized system variant of the LRAS3, and it features an integrated modular laser designator. (Ralph Zwilling)



The vehicle's FS3 MEP with attached LDM can also be deployed dismounted. For this purpose, a tripod and battery set are stored inside the vehicle. A manually operated crane, mounted on the roof of the M1131 Stryker FSV, allows the crew to dismount the heavy FS3. (Ralph Zwilling)



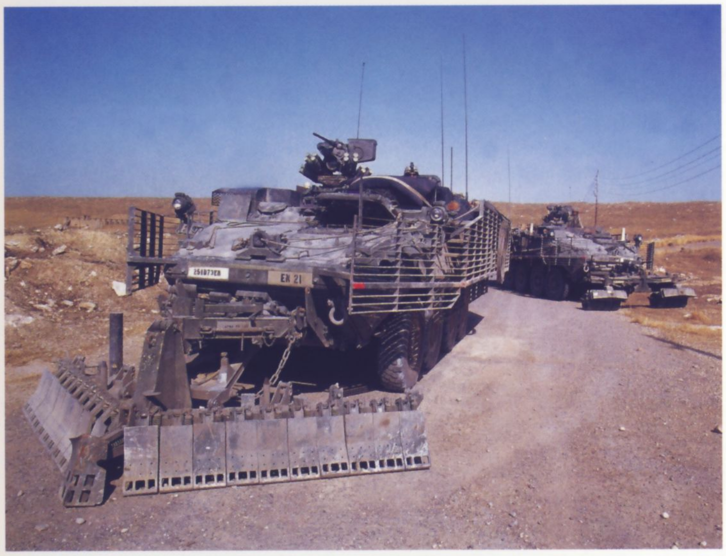
This is where the squad leader and mission specialist are seated in the M1132 Stryker FSV. The SCU is mounted in front of his seat. (Ralph Zwilling)



Mounted inside the rear compartment of the M1131 Stryker FSV is most of the vehicle's mission-related C4ISR equipment. This includes the Forward Observer System (FOS), Standalone Computer Unit (SCU) with Remote Display Unit (RDU), 2x AN/VRC-91F ASIP radios, 1x AN/VRC-88F, AN/UYK-128 FBCB2, and AN/VSQ-2 (V) 1 EPLRS. (Ralph Zwilling)

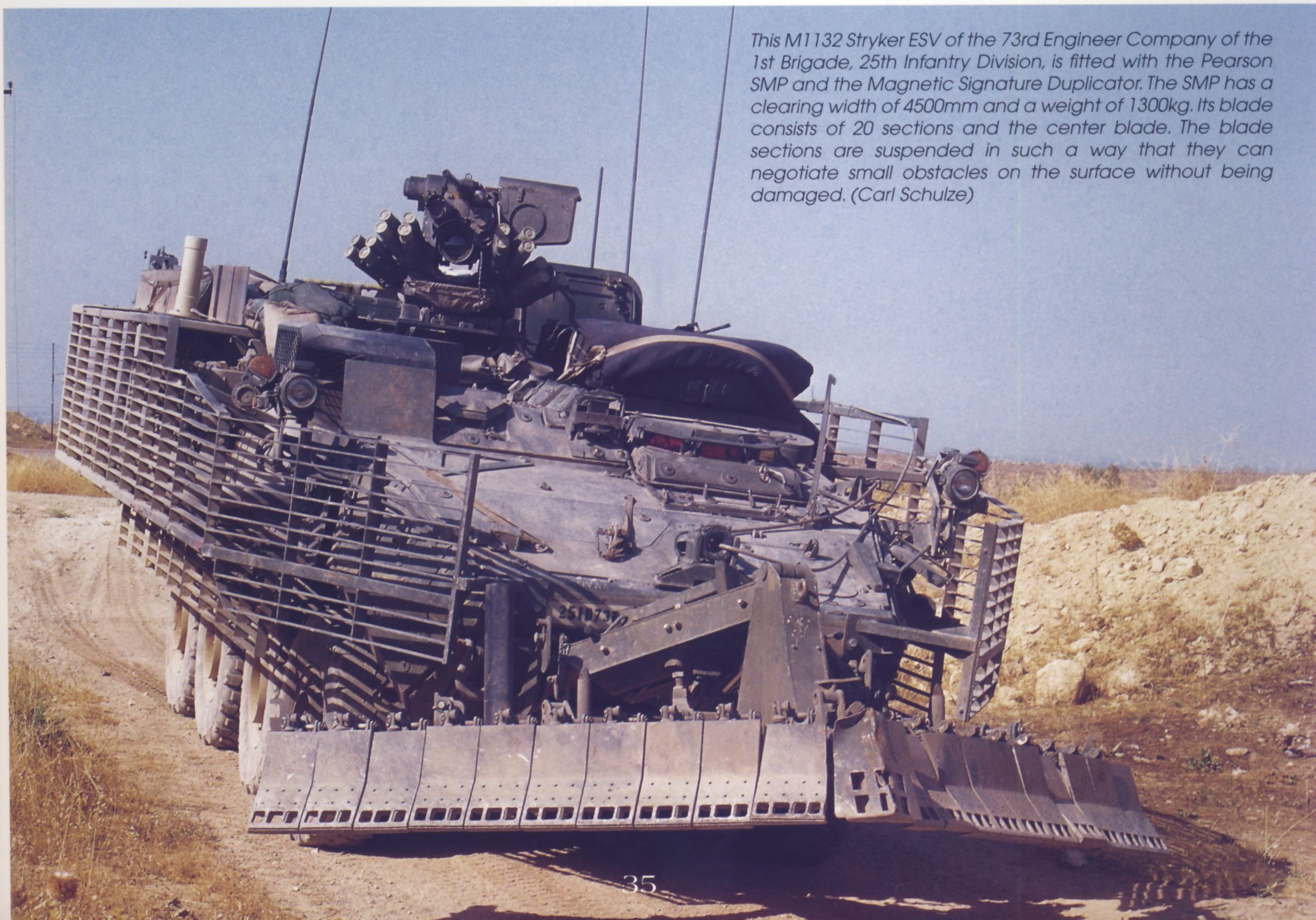
The M1132 Stryker Engineer Squad Vehicle

Engineer squads of SBCT engineer companies use the M1132 Stryker Engineer Squad Vehicle. It is nearly identical to the M1126 Stryker ICV, but it is modified to store and fit specific engineer mission equipment. Mounted at the front of the vehicle is the Jettison Fitting Kit (JFK), basically an adapter with electrical and hydraulic power connectors that allows the vehicle to be fitted with a Surface Mine Plow (SMP), Lightweight Mine Roller (LWMR), Angled Mine Plow (AMP) or Straight Obstacle Blade (SOB). The SMP, AMP and LWMR can be fitted with Magnetic Signature Duplicators (MSD). The JFK eases fitting and removal in both emergency and routine conditions and allows equipment interchange within minutes. The SMP, AMP, LWMR and SOB all feature their own hydraulic systems to raise and lower them during operations. The vehicle's hydraulic systems power these items. The Mission Equipment Control Unit mounted in the driver's compartment is used to operate the attached devices.

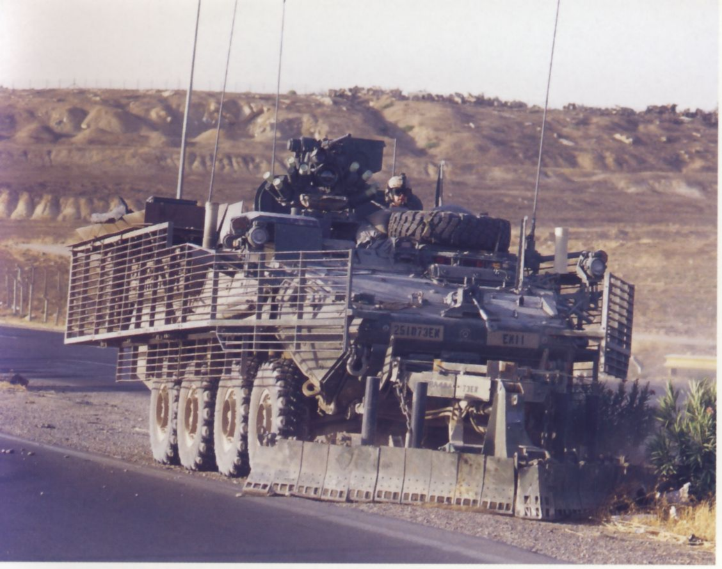


The M1132 Stryker Engineer Squad Vehicle can be fitted with mine-clearing devices such as a Pearson SMP or a Pearson LWMR. The devices are mounted on the Jettison Fitting Kit. Lowering and raising the SMP and LWMR is done hydraulically. Here, a pair of M1132 Stryker ESVs of the 73rd Engineer Company of the 1st Brigade, 25th Infantry Division, can be seen somewhere near Mosul, Iraq. The vehicle in front is fitted with an SMP while the one in the rear has an LWMR. (Carl Schulze)

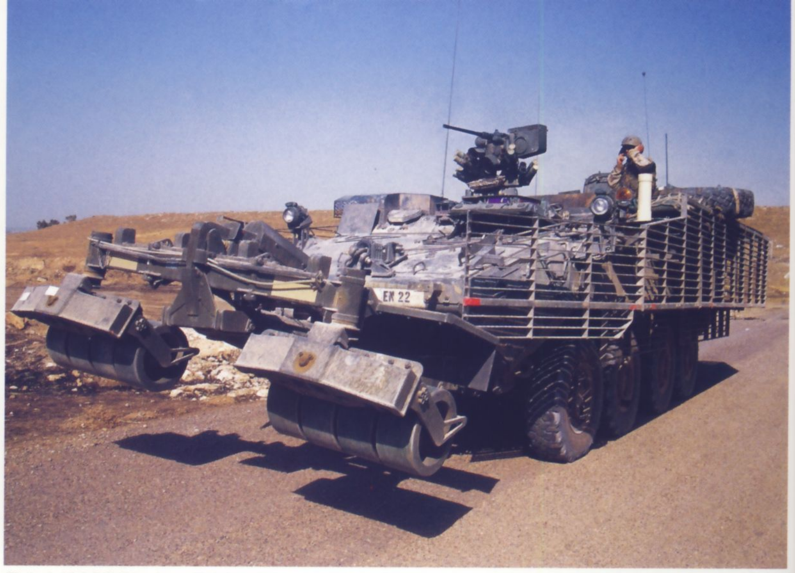
The LWMR is used to detonate and neutralize buried pressure-fused mines and other explosive devices in the vehicle's path. The LWMR has a clearing width of 3140mm with an uncleared 1190mm central section. The main elements of the LWMR are the two suspended caster roller assemblies containing four steel rollers each. The assemblies each provide an average approximate downward force of some 400kg so that mines are detonated before the vehicle reaches them. The roller assemblies can be quickly exchanged when damaged. Two indicator rods mounted on the outer corners of the LWMR make it easier for the driver to judge the dimensions of the device. The SMP and AMP are used to clear surface-laid mines and munitions ahead of the vehicle for rapid route and area clearance operations. The main elements of the V-shaped, multi-section, multi-blade SMP are the left and right inner blades (each with seven blade sections) and the left and right blades (each with three blade sections). The right and left blades can be folded over the inner right and left blades, and by so doing the width of the SMP for traveling is reduced to 2800mm. When unfolded, the hydraulically operated SMP has a clearing width of 4500mm. The 20 blade sections and center blade of the SMP are suspended in such a way



This M1132 Stryker ESV of the 73rd Engineer Company of the 1st Brigade, 25th Infantry Division, is fitted with the Pearson SMP and the Magnetic Signature Duplicator. The SMP has a clearing width of 4500mm and a weight of 1300kg. Its blade consists of 20 sections and the center blade. The blade sections are suspended in such a way that they can negotiate small obstacles on the surface without being damaged. (Carl Schulze)



August 2005 - Main Supply Route Tampa, somewhere south of Mosul in Iraq. An M1132 Stryker ESV uses its SMP to remove suspicious debris on the side of the road that might well be used by insurgents to cover an IED. The vehicle belongs to the 73rd Engineer Company of the 1st Brigade, 25th Infantry Division. (Carl Schulze)

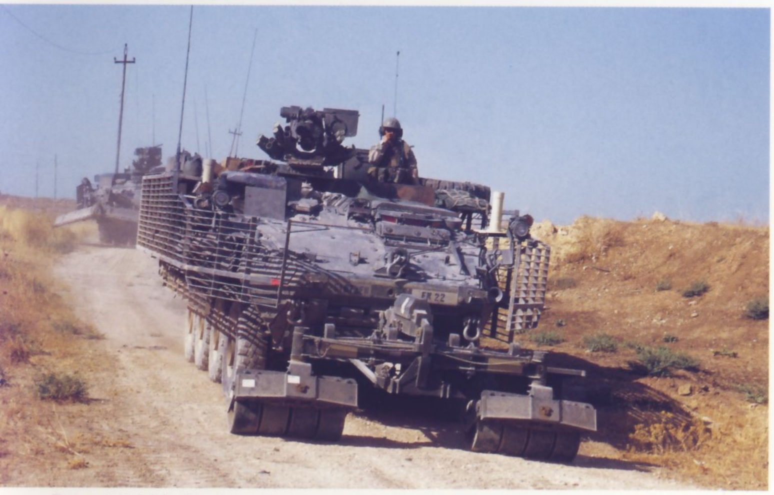


This M1132 Stryker ESV is fitted with a Pearson LWMR. Note the yellow-colored Warlock Electronic Counter-Measure sensor mounted on the left side of the vehicle on the slat armor. Though not visible here, a second sensor is mounted on the opposite side of the vehicle. The Warlock Electronic Counter Measure system is a jammer that interrupts signals from mobile phones and other devices used in IED remote controls. (Carl Schulze)

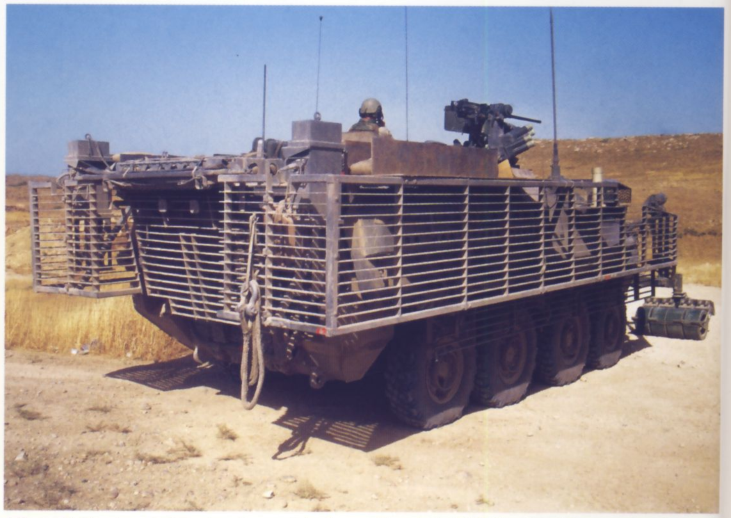
that they can negotiate small obstacles on the surface without them being damaged. In front of the blade are four suspended metal springs that act as disturber chains. The SMP has a weight of 1300kg. The AMP is of the same design as the SMP but features a straight 4200mm-wide blade constructed of 22 blade sections but lacking the center blade. The blade sections are identical to that of the SMP and are also grouped in inner and outer blade sections that can be folded over each other.

The AMP has a weight of 1435kg and a transport width of 2900mm. Mine clearing with the LWMR, the AMP or the SMP can be conducted up to a maximum speed of 15km/h. The SOB provides the M1132 Stryker ESV with a light earthmoving and obstacle reduction capability. It can be used to prepare defensive positions, level ground, remove urban roadblocks and obstacles, fill craters, breach enemy defensive positions and open routes. The 3000mm-wide and 1170mm-high blade of the SOB is fitted with hardened steel cutting edges and the SOB features an energy absorption mechanism to protect the blade and vehicle against damage from excessive forces - for example, when driving into an obstacle at high speed. The SOB has a weight of 1260kg. When not in use, the compact blade is raised and stowed close to the vehicle hull. The Magnetic Signature Duplicators add an additional layer of mine protection to the SMP and LWMR by replicating the effects required to detonate magnetically-fused mines ahead of the mechanical clearance device. This standoff capability prevents the mechanical devices from being damaged and becoming unserviceable. The MSD has a weight of 180kg and is powered by the vehicle's 24V electrical system.

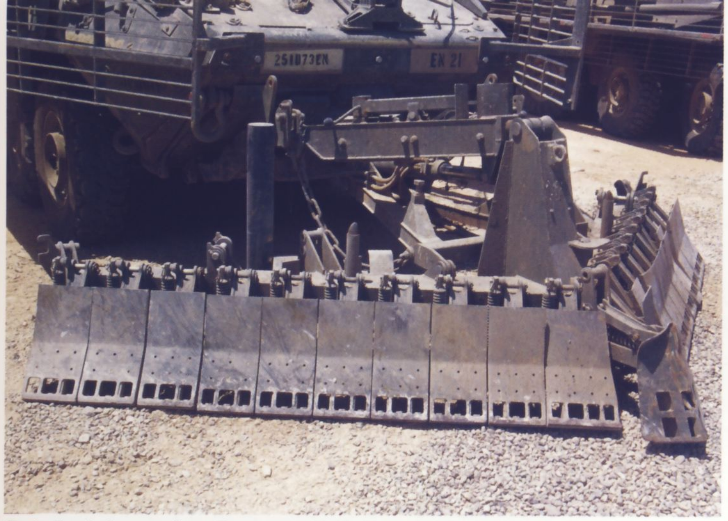
To the rear left and right side of the M1132 Stryker ESV is a Lane Marking Equipment dispenser unit. With this equipment, a cleared lane is marked by 1000mm-long marker poles shot down into the ground with an air pressure of 100psi. While the standard pole is fitted with fluorescent and reflective identification panels, other poles are available (nighttime poles with LED or IR beacons). Each electro-pneumatic Lane Marking Equipment dispenser unit carries 50 marker poles. The dispenser unit is reloaded manually and no special tools are required. Each dispenser unit has a weight of 76kg minus the marker poles. A 24V control box located in front of the squad leader's seat is used to operate the Lane Marking Equipment, such as setting the marker intervals. Marking can be done manually on demand, at preset time intervals or distance-based intervals. Pearson Engineering in the UK manufactures the SMP, LWMR, SOB, JFK, MSD and Lane Marking Equipment. The M1132 Stryker ESV features raised headlights so that the light beams can reach over the front-mounted mission-specific equipment. Above the rear ramp of the M1132 Stryker ESV is an extension in the form of a large storage basket. Most of the



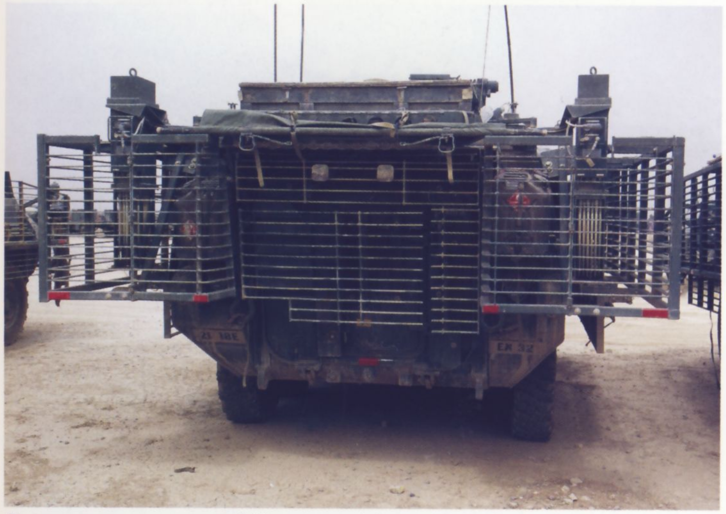
Two M1132 Stryker Engineer Squad Vehicles of the 73rd Engineer Company, 1st Brigade, 25th Infantry Division, conduct a road clearance operation in northern Iraq. The first vehicle is fitted with an LWMR and the second vehicle is fitted with an SMP. Each SBCT includes an engineer company that can field a total of nine M1132 Stryker ESVs in its three Combat Mobility Platoons. (Carl Schulze)



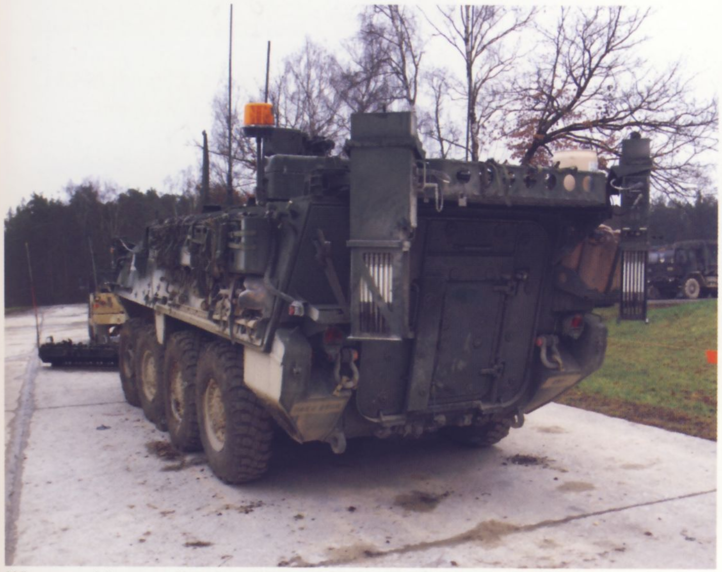
Like all Stryker IAVs deployed to Iraq, the M1132 Stryker Engineer Squad Vehicle is fitted with slat armor. An LWMR is mounted on the front of this M1132 Stryker ESV. Note the Lane Marking Equipment dispenser units mounted inside the "bird cage" to the left and right rear of the vehicle. (Carl Schulze)



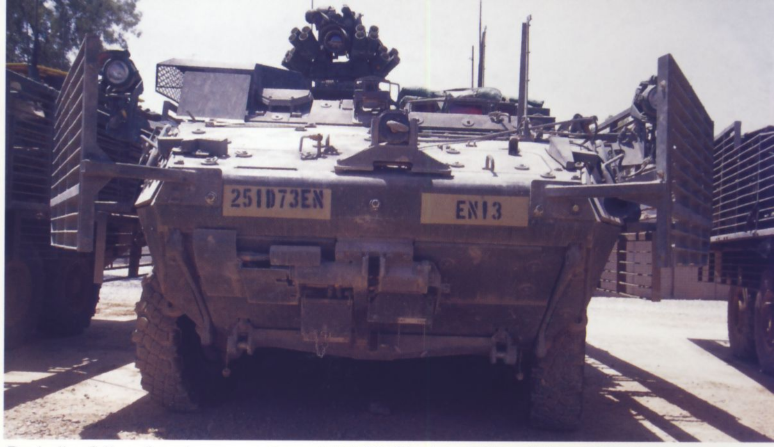
Detail picture of a Pearson SMP. The right and left blades can be folded over the inner right and left blades, reducing its traveling width from 4500mm to only 2800mm. The black tube-like device on the left is a Magnetic Signature Duplicator. By creating a magnetic field at the front of the vehicle, the MSD activates magnetically-fused mines that then blow up before the vehicle actually reaches them. (Carl Schulze)



Slat armor runs around the complete vehicle to protect it from RPG warheads. A large storage basket above the rear ramp of the M1132 Stryker ESV provides additional space for storing special engineering equipment. (Carl Schulze)

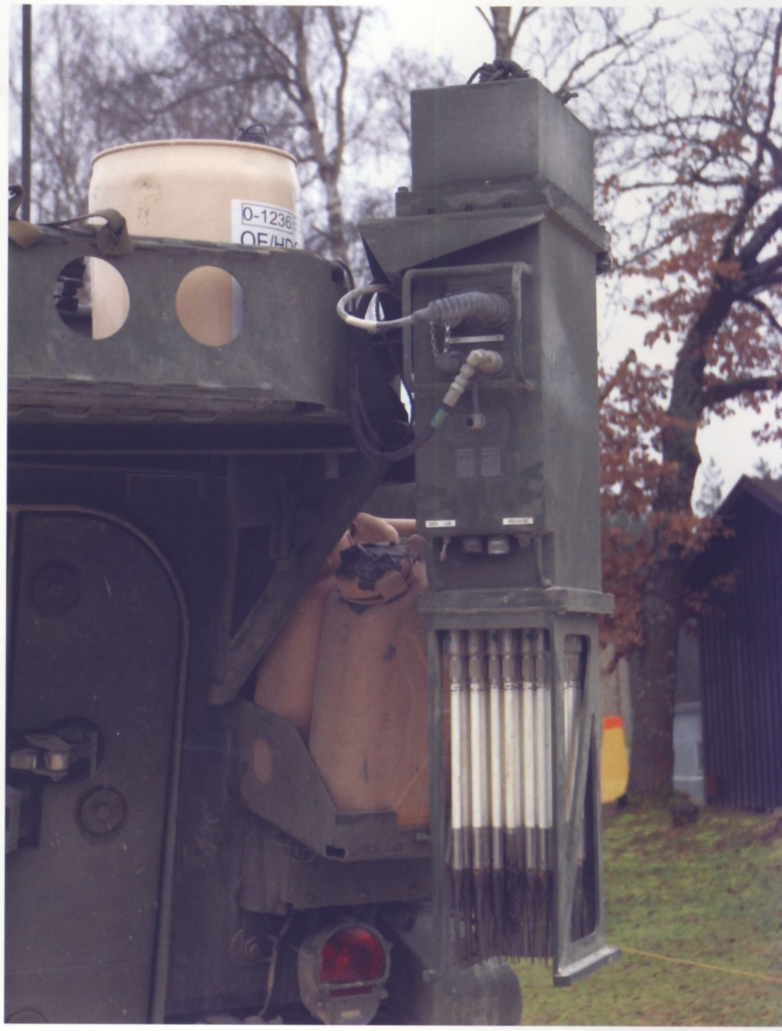


When not in use, the two Lane Marking Equipment dispenser units can be moved inwards in order to minimize the vehicle' traveling width. Each electro-pneumatic dispenser unit carries 50 marker poles. The dispenser units are reloaded manually, and are operated from the control box situated inside the vehicle. (Ralph Zwilling)



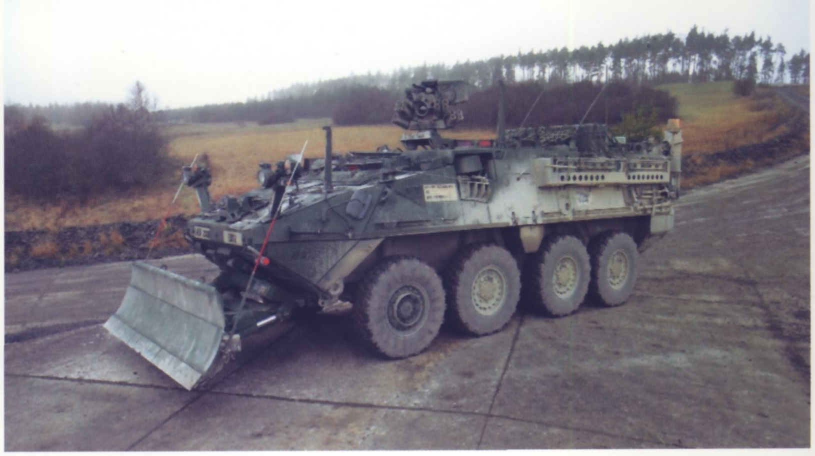
Detail of the front area of an M1132 Stryker ESV of the 73rd Engineer Company clearly shows the JFK, which is basically an adapter with electrical and hydraulic power connectors that allows the vehicle to be fitted with an SMP, LWMP, AMP or SOB. (Carl Schulze)

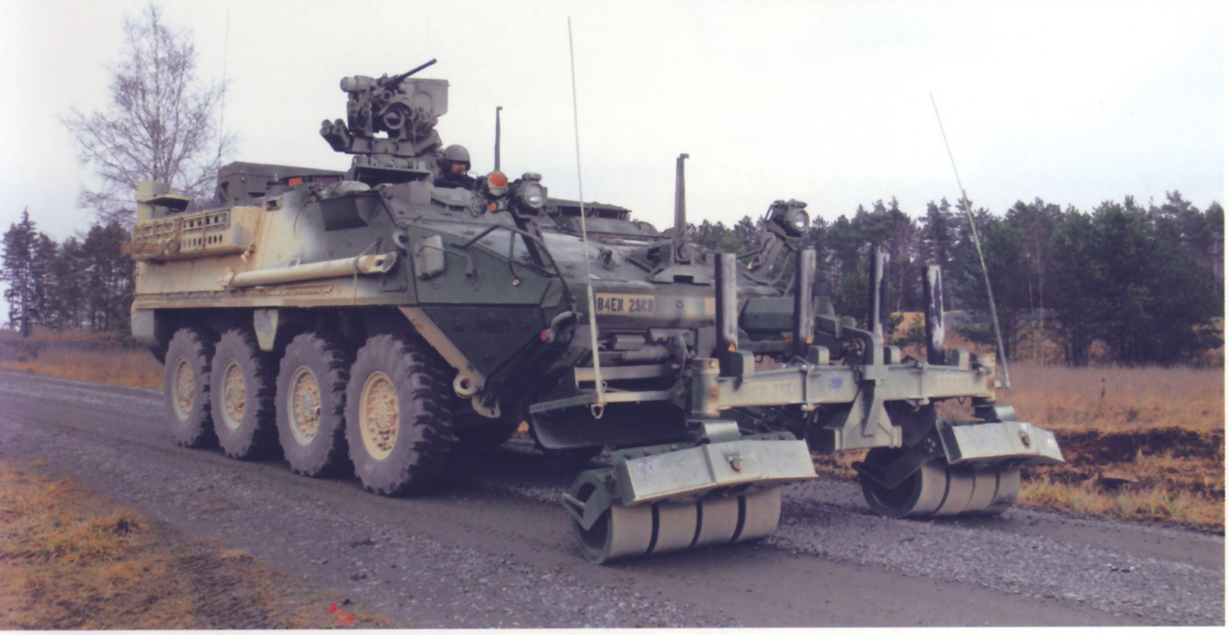
engineer's special equipment is stored in this and other storage baskets along the vehicle sides as well as on the roof. This includes demolition equipment (3x M112 charges, 2x cases of M118 PETN charges, 3x M186 PETN roll charges, 4x rolls of M456 detonator cord, 5x M10 Explosive Destructors, Modernized Demolition Initiators, 30x M11 blasting caps, a mix of 68x non-electric blasting caps of various types, 11x M151 and M152 Demolition Charge Boosters, 60x M81 Time Blasting Fuse Igniters), and the Squad Pioneer Tool Kit (including assault ladder, rappelling equipment, modular breaching tools). These are stored in nine large storage bags.



Close-up of a Lane Marking Equipment dispenser unit. With the Lane Marking Equipment, a cleared lane is marked by 1000mm-long marker poles. Marking intervals are set via a control box located in front of the squad leader's seat. Marking can be done manually, at preset time intervals, or at distance-based intervals. (Ralph Zwilling)

This M1132 ESV of the 84th Engineer Company is fitted with the SOB, which provides it with a light earthmoving and obstacle reduction capability. The 3000mm-wide and 1170mm-high blade has a weight of 1260kg. An energy absorption mechanism protects the blade and vehicle against damage from excessive forces, for example when driving into an obstacle at high speed. (Ralph Zwilling)



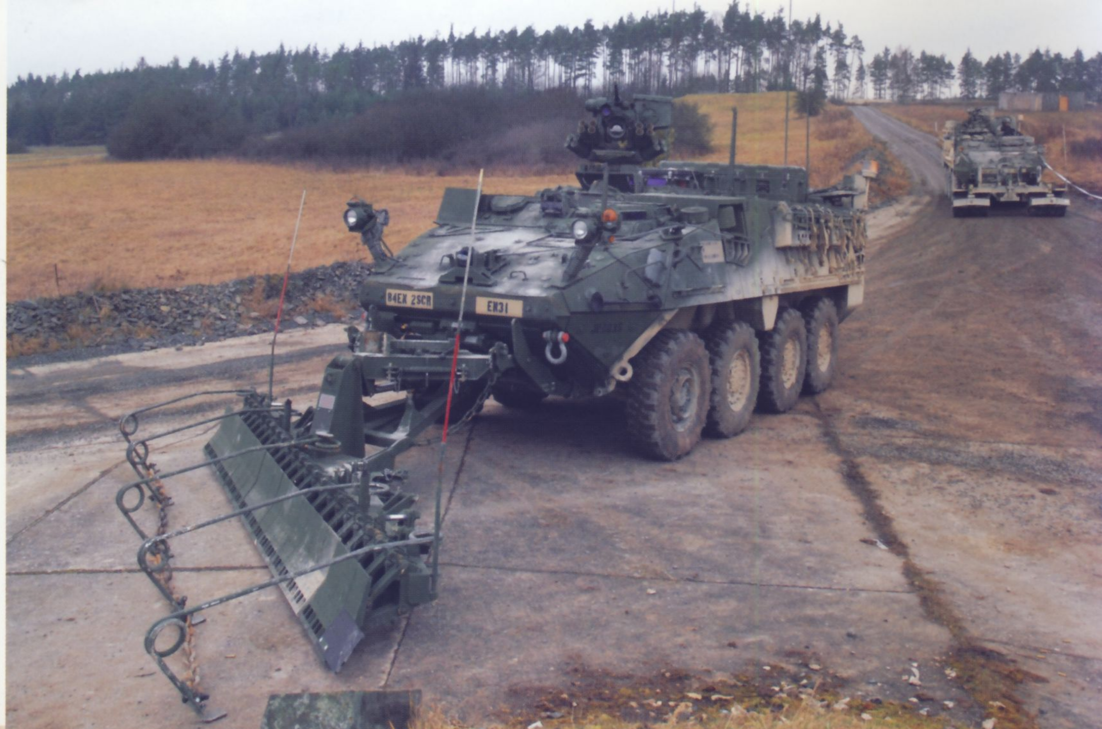


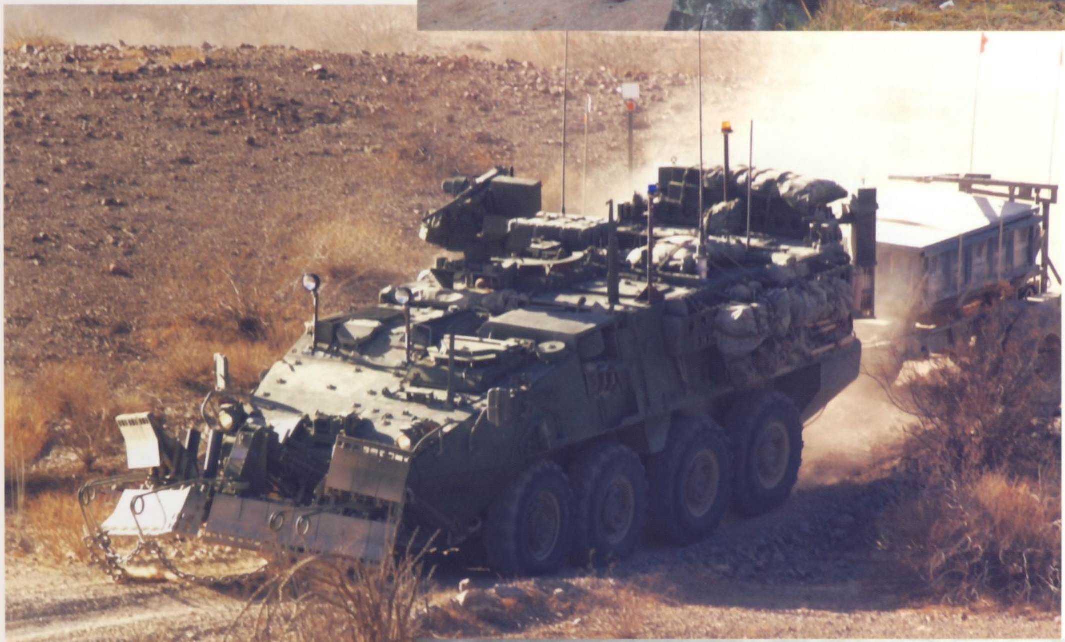
The LWMR mounted on this M1132 Stryker ESV is fitted with Magnetic Signature Duplicators. The LWMR is used to detonate buried pressure-fused mines in the vehicle's path. It has a clearing width of 3140mm with an uncleared 1190mm central section. The main elements of the LWMR are the two suspended caster roller assemblies containing four steel rollers each. The vehicle belongs to the 84th Engineer Company of the 2nd Stryker Cavalry Regiment. (Ralph Zwilling)

Specific technical data for the M1132 Stryker Engineer Squad Vehicle

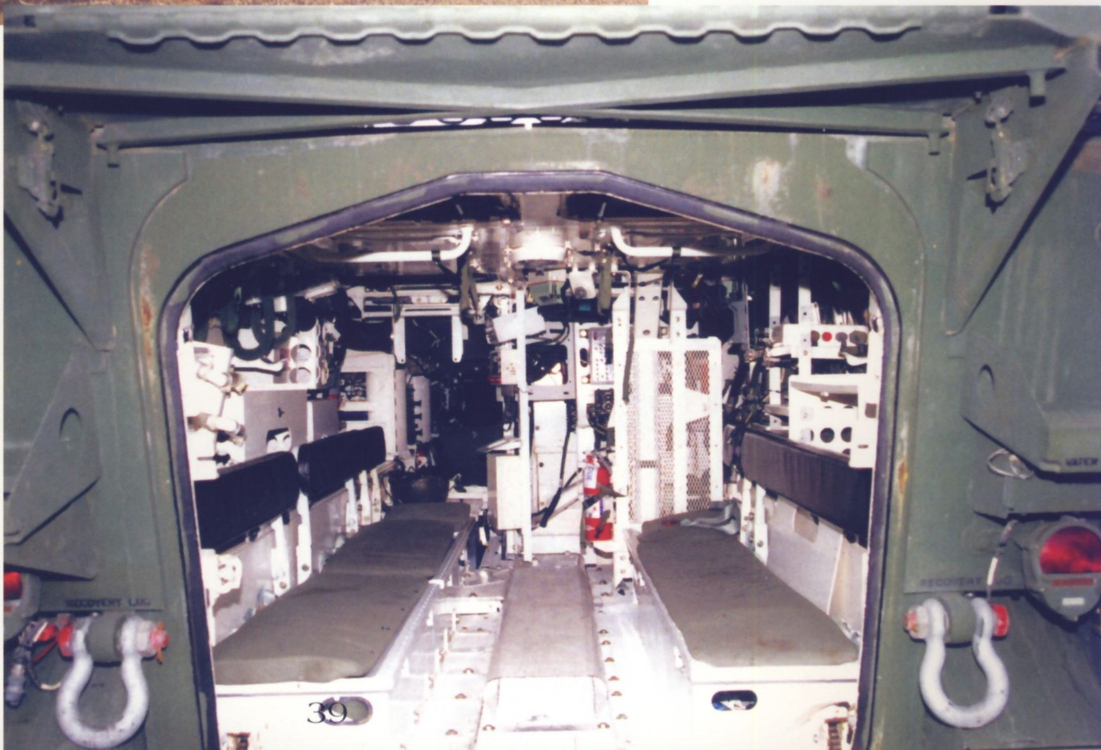
Crew:	2+9 (commander, driver, squad leader and eight engineers)
Combat weight:	18,956kg
Curb weight:	16,239kg
Maximum towed load:	22,680kg
Overall length:	7589mm
Overall width:	3907mm (including personal equipment)
Overall height:	3198mm
Armament:	1x 12.7mm M2 MG or 1x 40mm Mk.19 MOD3 automatic grenade launcher 4x M6 66mm four-tube smoke discharger systems
Squad weapons:	1x 7.62mm M240B, 1x Javelin Command Launch Unit, 2x M136 AT-4 light antitank weapons, 9x 5.56mm M4A1 carbines (two fitted with a 40mm M203 grenade launcher) and 2x 5.56mm M249 Squad Automatic Weapons
On-board ammunition:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 480 rounds of 40mm (M430 HEDP) 3200 rounds of 7.62mm (M80 and M62 tracer linked) 2240 rounds of 5.56mm (M855 and M856 tracer) 1120 rounds of 5.56mm (M855 and M856 tracer linked) 16x 66mm smoke grenades (M76 IR and L8A3) 8x hand grenades (Smoke M18 and Incendiary AN-M14) 32 rounds of 40mm (M433 HEDP, M585 Illumination and M583 Illumination) for M203 Demolition equipment (3x M112 charges, 2x cases of M118 PETN charges, 3x M186 PETN roll charges, 4x rolls of M456 detonator cord, 5x M10 Explosive Destructors, Modernized Demolition Initiators, 30x M11 blasting caps, mix of 68x non-electric blasting caps of various types, 11x M151 and M152 Demolition Charge Boosters, 60x M81 Time Blasting Fuse Igniters) 2x Javelin ATGM missiles
C4ISR structure:	1x AN/VRC-91F ASIP radio, 1x AN/VRC-92F ASIP radio, 1x portable AN/PRC-119F ASIP radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, ETM, AN/PSN-11 PLGR (or its replacement, the DAGR) and VIS/VIC
Other systems:	Jettison Fitting Kit, Surface Mine Plow (SMP), Angled Mine Plow (AMP), Lightweight Mine Roller (LWMR), or Surface Obstacle Blade (SOB), Magnetic Signature Duplicator, Lane Marking System (LMS), a folding litter, quickie saw, Squad Pioneer Tool Kit (including assault ladder, rappelling equipment, modular breaching tools), tripod for M240B, and cable telephones

Another mine-clearing device available in the inventory of SBCT engineer companies is the Angled Mine Plow. Like the SMP, the AMP is used to clear surface-laid mines and unexploded ammunition. The AMP is of the same design as the SMP but features a straight 4200mm-wide blade constructed of 22 sections. The AMP has a weight of 1435kg and a transport width of 2900mm. Here, an M1132 Stryker ESV of the 84th Engineer Company can be seen fitted with the AMP. (Ralph Zwilling)

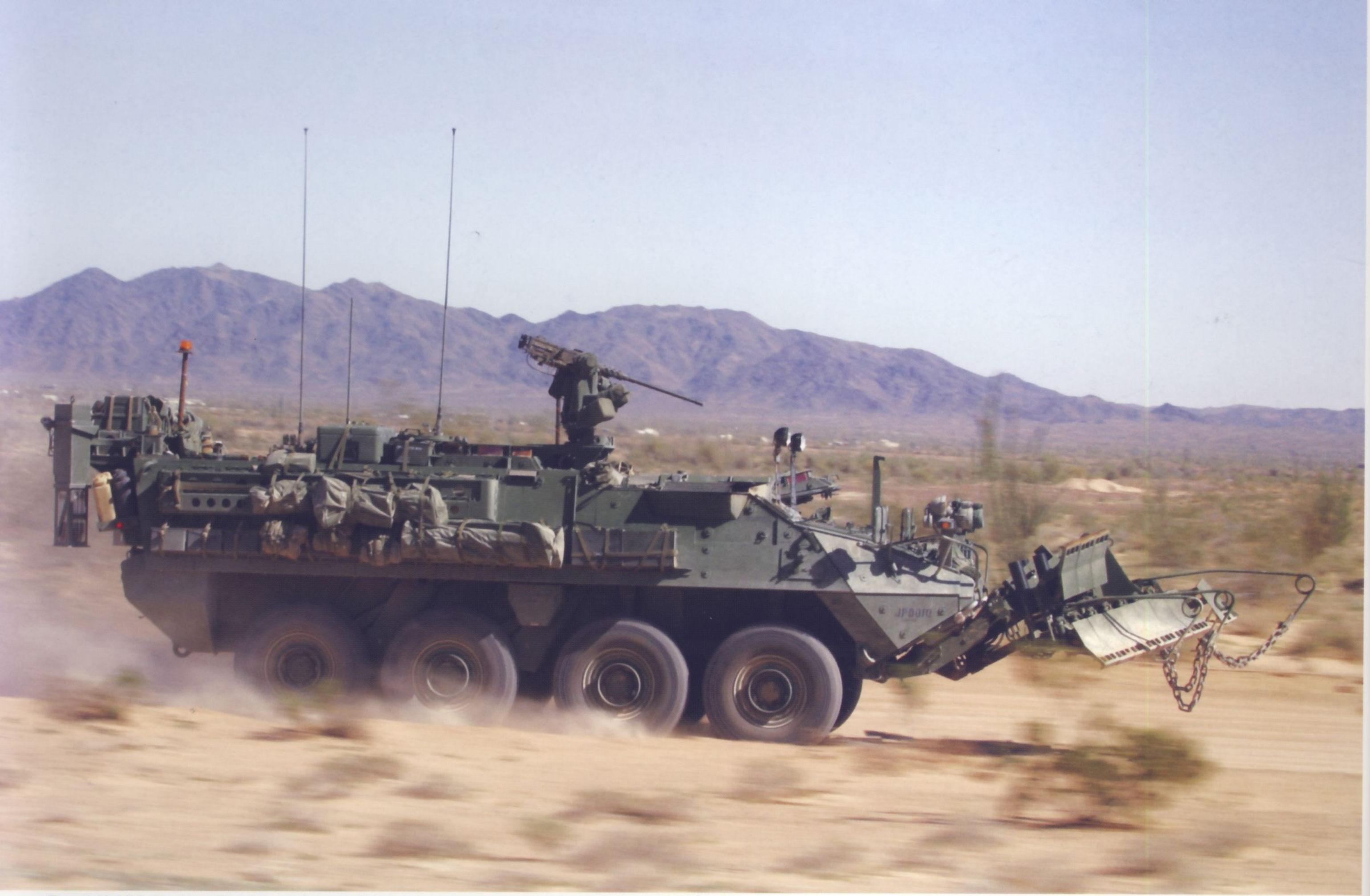




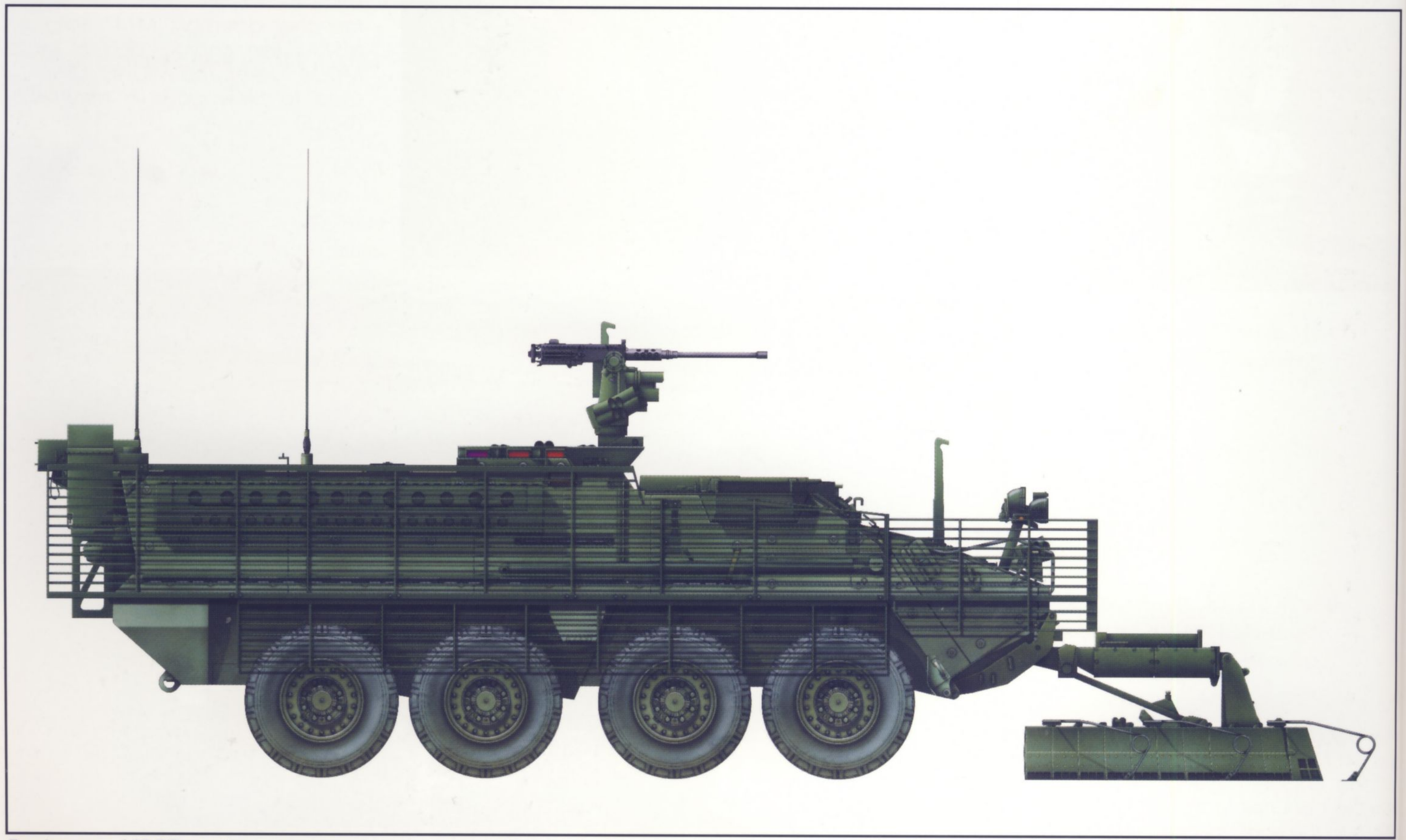
Like all other Stryker IAV variants, the M1132 Stryker ESV features a towing hook that can pull a variety of trailers. A typical trailer for the M1132 Stryker ESV is the Mine Clearing Line Charge. The MICLIC system consists of the M200A1 2 ?-ton trailer, launcher assembly, M147 firing kit, M58A4 line charge, and a Mk.22 MOD4 rocket. The MICLIC system is used to blow gaps in minefields. (GDLS)



A view of the rear compartment of an M1132 Stryker ESV. The members of the engineer squad are seated on the benches to the left and right (four to the right and five to the left). Some of the squad's equipment is stored under and behind the benches. (Ralph Zwilling)



The M1132 Stryker Engineer Squad Vehicle has a combat weight of 18,956kg and can reach a top speed of 101km/h. Here an M1132 Stryker ESV fitted with the 1300kg heavy SMP can be seen traveling at high speed over rough terrain. (GDLS)



Engineers of SBCT engineer companies use the M1132 Stryker Engineer Squad Vehicle. Several mission-related attachments can be mounted at the front of the vehicle. The pictured vehicle is fitted with an AMP while an LMS is mounted at the rear. The slat armor indicates this vehicle belongs to an engineer company deployed to Iraq with OIF.

Th

The I
of th
suppo
M113
recov
prote
the p
MEV
width
the ve
crew,
standa
stretc
evacu

The M
unarm
66mm
comm
grena
a parti
roof s
raised
and st
sidewa
of the
accom
along
allows
tray th
medic
the str
maxim
way fo
be sea

Lightin
Incorp
include
high-in
designe
that ca
areas v

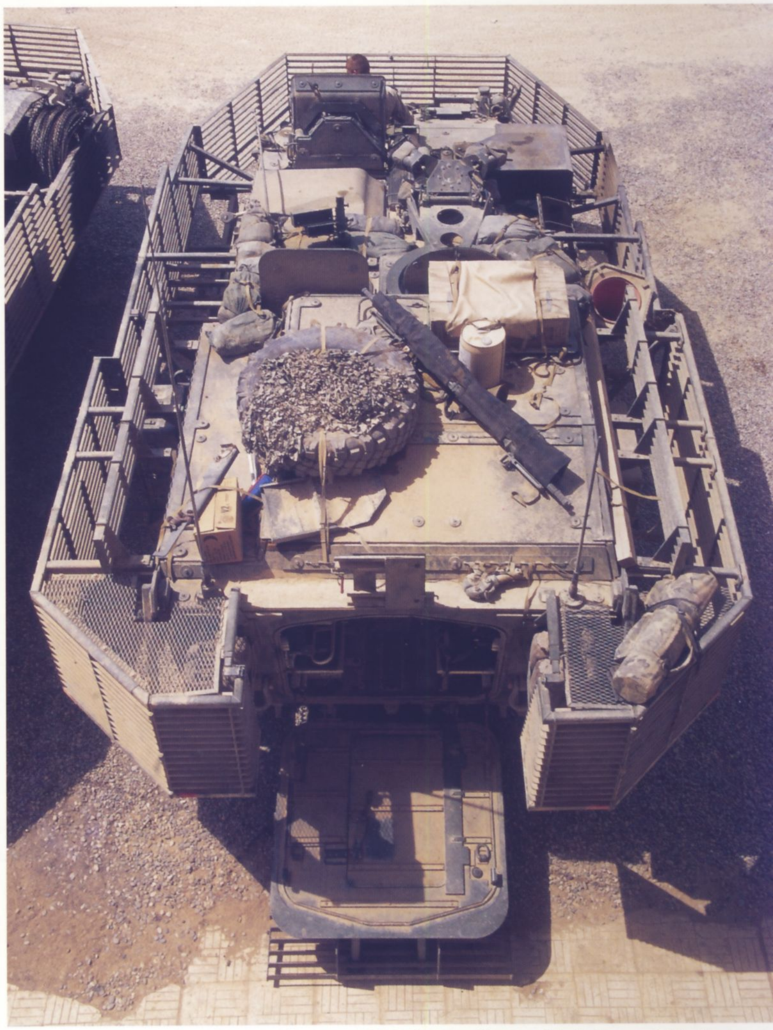
The M1
compa
roof ha
Therefo
and 45
loaded
room b
to patie

The M1133 Stryker Medical Evacuation Vehicle

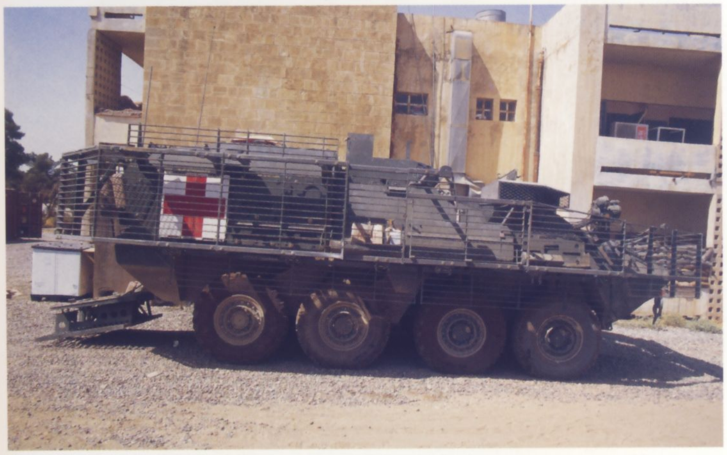
The M1133 Stryker Medical Evacuation Vehicle is the ambulance version of the Stryker designed to provide medical treatment and evacuation support to ground troops in complex terrain and urban environments. The M1133 Stryker MEV provides medical assets with the capability of recovering wounded troops under enemy fire while providing armored protection for patients and medical personnel. It offers medical personnel the possibility of stabilizing patients for transport. The M1133 Stryker MEV has a combat weight of 16,938kg, an overall length of 7006mm, width of 2906mm and height of 2582mm. The vehicle's crew consists of the vehicle commander, driver and a medical attendant. In addition to its crew, the vehicle can transport six seated patients, four patients on NATO-standard stretchers, or a mix of three seated patients and two patients on stretchers. Within the SBCT the M1133 Stryker MEV is mainly used for evacuating wounded personnel down the line.

The M1133 Stryker MEV is based on the M1126 Stryker ICV but it is unarmed. For self-defense the vehicle is fitted with six M66 four-tube 66mm smoke grenade discharger systems located in front of the vehicle commander's hatch. The M66 system fires M76 non-IR penetrating smoke grenades or UK L8A3 smoke grenades. The M1133 Stryker MEV features a partly raised roof over the rear compartment. The final third of the raised roof slopes down to just above the large rear ramp. The flat area of the raised roof is some 250mm higher than the roof of the M1126 Stryker ICV and stretches two-thirds over the right side of the rear compartment. The sidewalls of the rear compartment are vertical and are not sloped like those of the M1126. Two wounded patients on standard NATO stretchers can be accommodated above each other inside the rear compartment on each side along the sidewalls. A powered Air Methods Corporation litter lift system allows quick and easy storage of the stretchers. This system incorporates a tray that can be pulled out into the center of the rear compartment. After the medics have placed the stretcher on the tray it is pushed back in place. Then the stretcher is hydraulically lifted to a higher position. The system has a maximum load capacity of 136kg. When folded up, the stretchers make way for three padded seats on each side so that a total of six wounded can be seated.

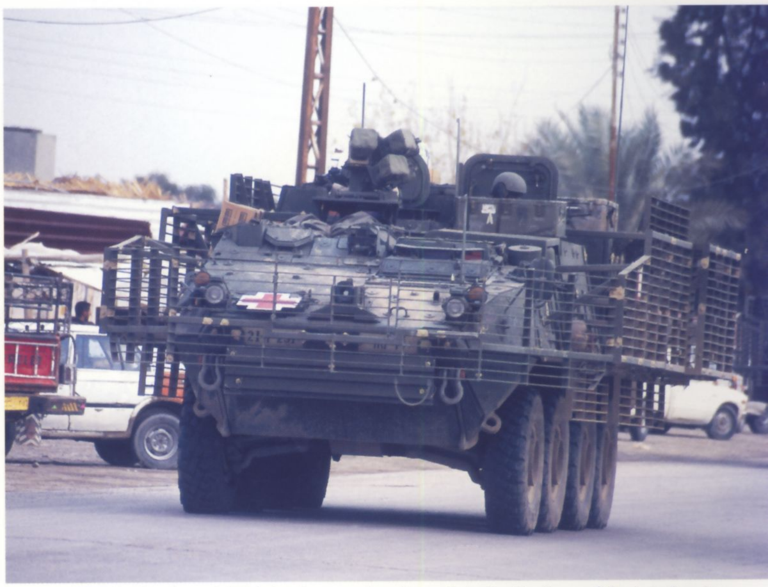
Lighting in the rear compartment is manufactured by Phantom Products Incorporated and consists of several low-profile super-bright light units that include a patented optical system designed to provide concentrated light for high-intensity use or diffused lighting for ambient illumination. Also designed by the same company are special NVG-secure Task Light Units that can be clamped onto the stretchers and directed to illuminate specific areas via a flexible arm. Medical equipment stored inside the M1133



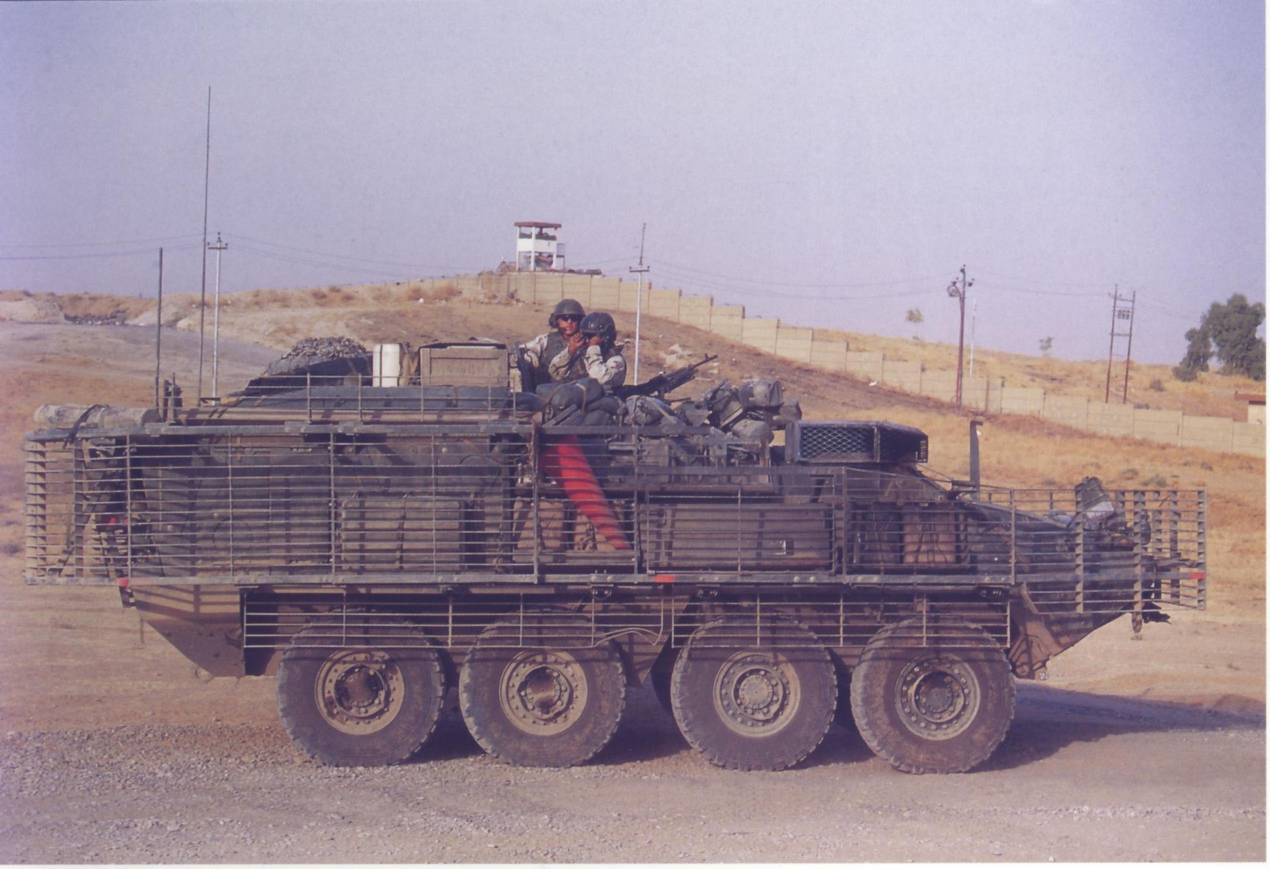
This picture of an M1133 Stryker MEV shows the vehicle's roof. Unlike other variants, the M1133 Stryker MEV does not feature any hatches in the rear compartment roof. Due to the wider and higher rear compartment, the slat armor of the M1133 Stryker MEV differs from that of the M1126 ICV. Note the added side panels and the wider slat armor around the rear compartment. (Carl Schulze)



The M1133 Stryker Medical Evacuation Vehicle has a modified rear compartment to allow the transportation of patients on stretchers. The roof has been raised and the side walls were moved slightly outwards. Therefore, the M1133 Stryker MEV provides 711mm lateral clearance and 457mm vertical clearance between NATO-standard litters in the loaded configuration. In addition, the vehicle provides adequate room between litters to allow the medical crew to provide assistance to patients. (Carl Schulze)

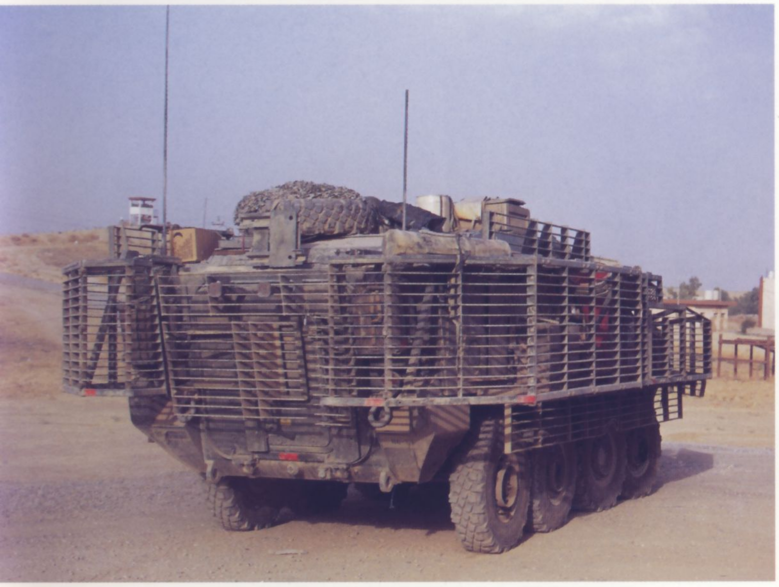


This M1133 Stryker MEV belongs to the 1st Battalion, 23rd Infantry Regiment, and was seen in Iraq in December 2003. The M1133 Stryker MEV is unarmed and it only features 66mm four-tube M6 smoke grenade launchers for self-defense, which are here covered by canvas covers. (Carl Schulze)



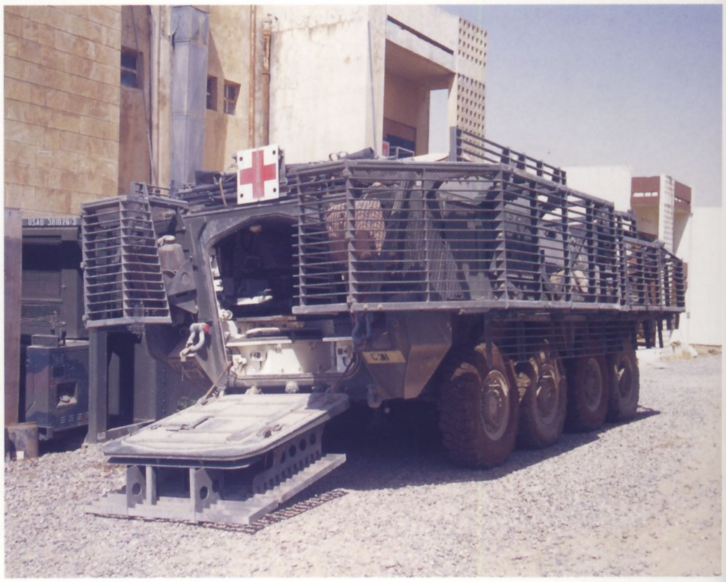
Side view of an M1133 Stryker MEV belonging to the 2nd Squadron, 14th Cavalry Regiment. Note the extended slat armor and the Engine Exhaust Deflector. The M1133 Stryker MEV features a partly raised roof over the rear compartment. The level area of the raised roof is some 250mm higher than that of the M1126, and stretches two-thirds over the right side of the rear compartment. The vehicle was seen in Mosul, northern Iraq, in August 2005. (Carl Schulze)

Stryker MEV consists of two Oregon spine splint immobilization/extrication devices, two SKED stretcher spine boards, a ProPaq Encore vital-signs monitor, a suction apparatus, a portable volume ventilator/resuscitator, two finger pulse oximeters, four oxygen bags (including Oxylator, facemasks, and tubing), four oxygen cylinders, four oxygen pressure regulators, an oxygen wrench box, eight woolen blankets, two burn blankets in canisters, and an M5 aid bag with medical equipment. A medical chest on the left side of the vehicle includes the Surgical Instrument Supply Set containing minor surgical instruments, medications and drugs, injection equipment, IV starter sets with fluids, and airway items. Additional medical equipment stored on the outside of the hull includes two additional NATO stretchers and the Ground Ambulance Medical Equipment Set.



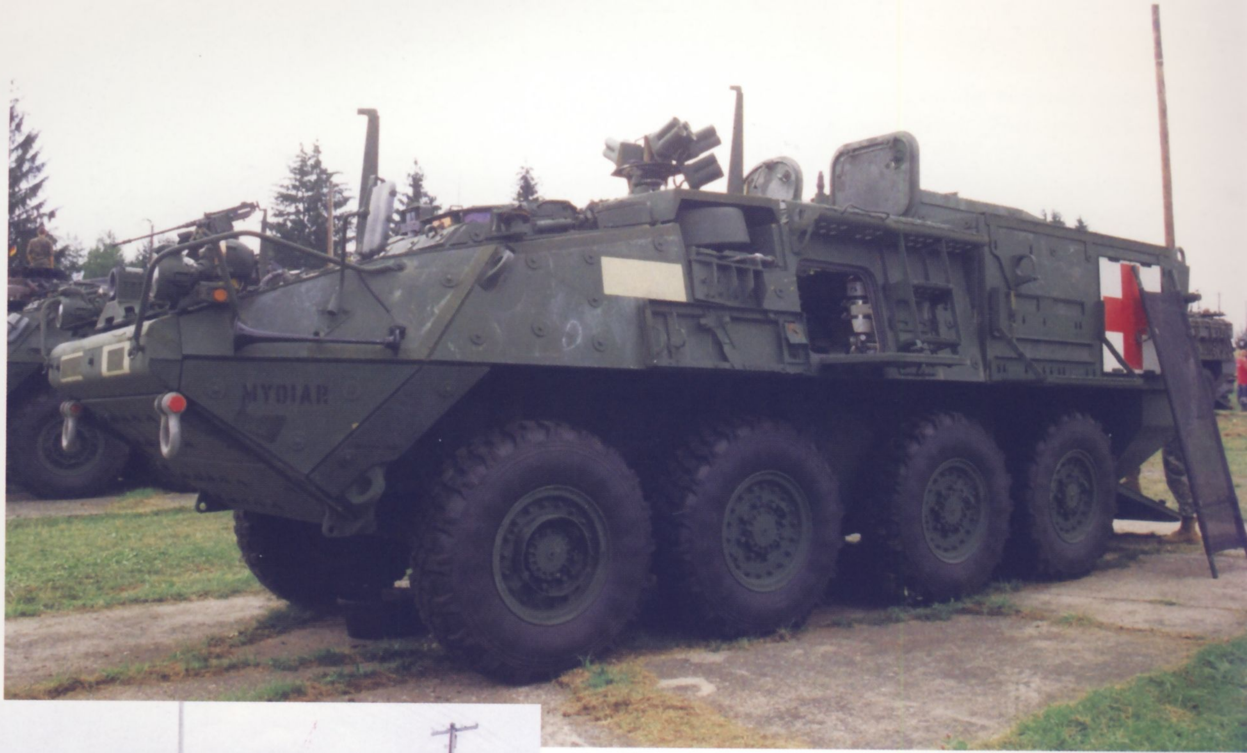
Rear view of an M1133 Stryker MEV belonging to the 2nd Squadron, 14th Cavalry Regiment. The vehicle is fitted with the slat armor package, nicknamed by troops as the "bird cage". Note that the red cross panel is folded away, a common practice in Iraq as insurgents do not respect the sign and are rather often attracted by it. The picture was taken on the outskirts of Mosul in August 2005. (Carl Schulze)

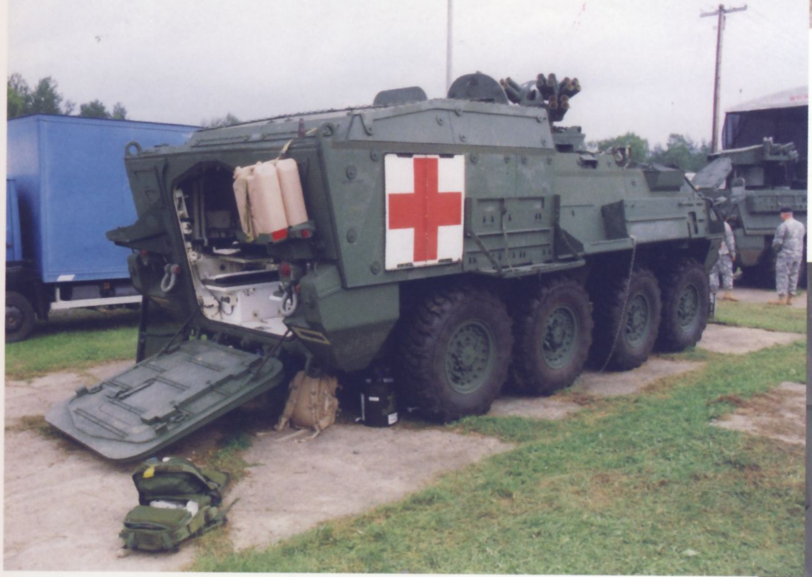
The M1133 Stryker MEV is fitted with the Medical Communication for Combat Casualty Care (MC4) system hardware and software. MC4 enhances medical situational awareness for operational commanders, and its database can provide lifelong electronic medical records for service members, plus it allows medical tracking of service members. The MC4 hardware includes the MC4-I Handheld Computer Set and the MC4-II Notebook Computer System. Series production of the M1133 Stryker MEV started in the autumn of 2002. The first five series vehicles then underwent final tests at the Aberdeen Proving Ground, Maryland, and the Yuma Proving Ground, Arizona. In March 2003 the vehicles were handed over to the 3rd Brigade, 2nd Infantry Division, at Fort Lewis, Washington. Early series production M1133 Stryker MEVs were not fitted with an air-conditioning system due to a lack of funds. As a result of experience in Iraq during OIF, later production vehicles were fitted with an air-conditioning system while vehicles produced earlier were upgraded with it.

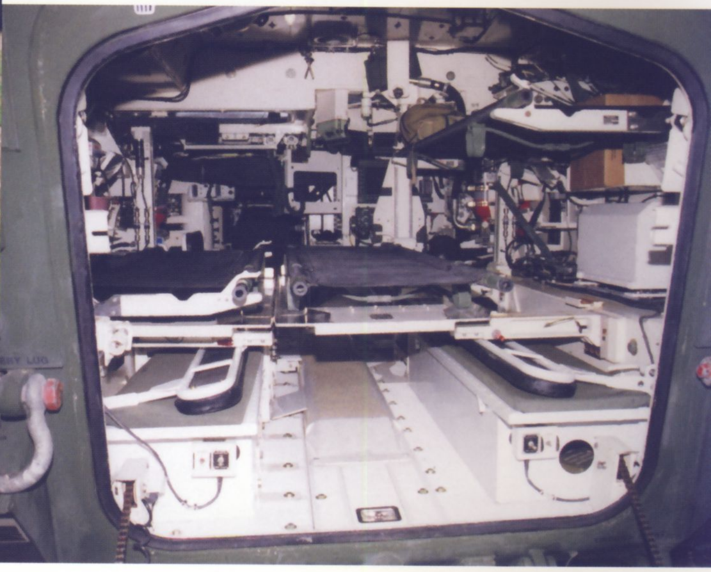


This picture shows an M1133 Stryker MEV of C Company, 25th Brigade Support Battalion, in August 2005 in Iraq. The ambulance platoon of the company could field six M1133 Stryker MEVs at this time. Note the lowered rear ramp, and evident is the distance between the vehicle ramp and the slat armor. (Carl Schulze)

The M1133 Stryker MEV has a three-man crew and it can transport four wounded troops on stretchers, or six seated wounded troops, or a mix of both. Without slat armor the vehicle has a combat weight of 16,938kg, and it is 7006mm long, 2906mm wide and 2582mm long. (Ralph Zwilling)



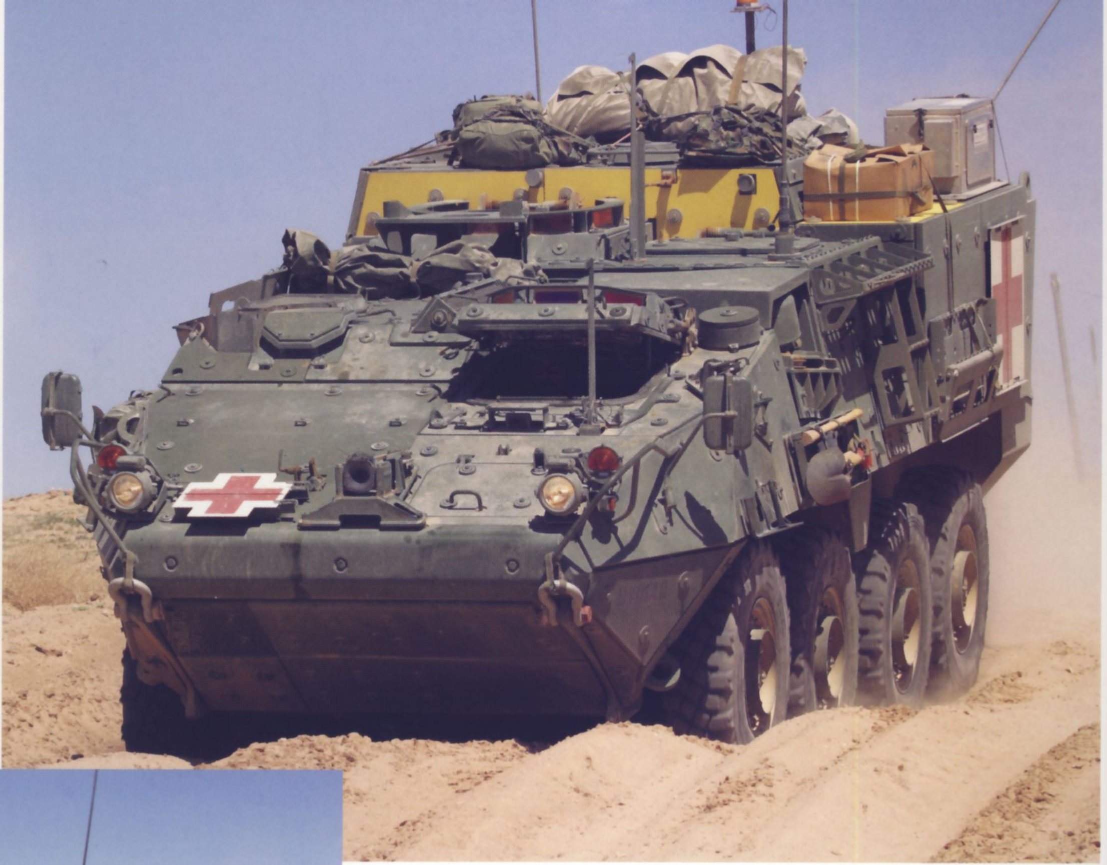




A view of the rear compartment of an M1133 Stryker MEV of the 25th Brigade Support Battalion. It allows evacuation of four patients on stretchers or six seated patients. Note the Air Methods Corporation litter lift system that allows quick and easy storage of stretchers. The system has a maximum load capacity of 136kg. (Ralph Zwilling)

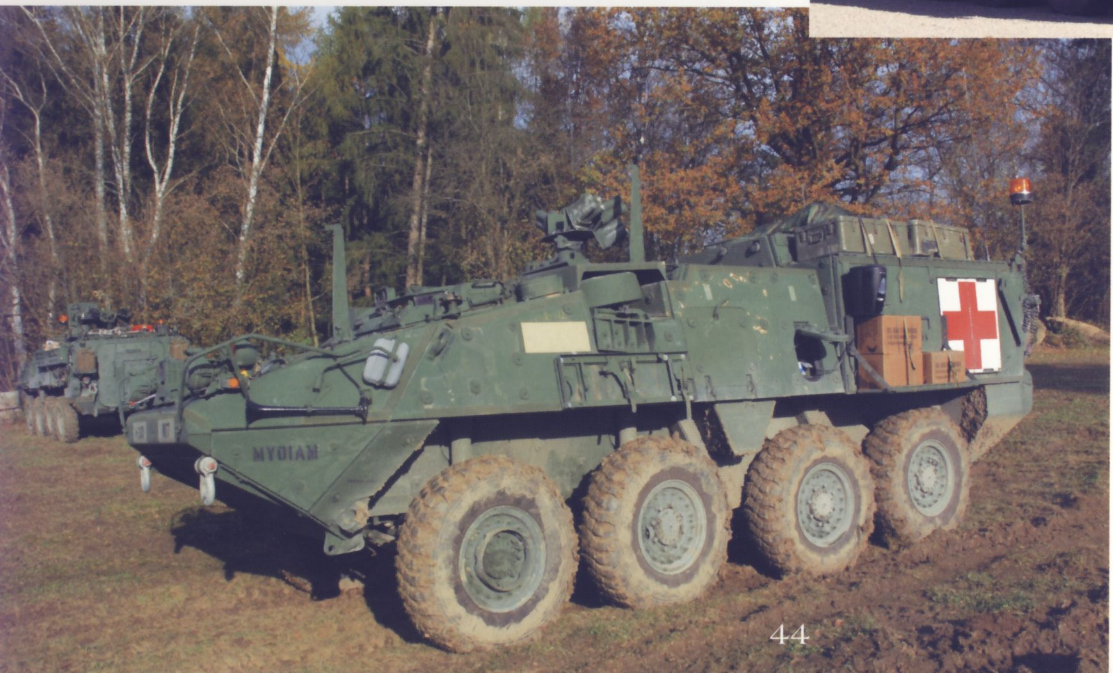
Specific technical data for the M1133 Stryker Medical Evacuation Vehicle

Crew:	3 (commander, driver and medical attendant)
Capacity:	four wounded on stretchers or six seated wounded, or a mix of two wounded on stretchers and three sitting
Combat weight:	16,938kg
Maximum towed load:	17,080kg
Overall length:	7006mm
Overall width:	2906mm
Overall height:	2582mm
Armament:	6x 66mm M6 four-tube smoke discharger systems
On-board ammunition:	16x smoke grenades (mix of M76 and L8A3)
C4ISR structure:	1x AN/VRC-91F ASIP radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, Embedded Training Module, AN/PSN-11 PLGR (or its replacement, the DAGR) and VIS/VIC
Other systems:	Extensive medical equipment (see text)



It is believed this vehicle is either a prototype or LRIP M1133 Stryker MEV. Note the yellow-colored front plate of the raised part of the roof. The vehicle is not yet fitted with the 66mm M6 smoke dischargers. The easiest way to distinguish the M1133 Stryker MEV is the vehicle's raised roof. Note the vast amount of medical and other equipment stored on the exterior of the vehicle. (GDLS)

The M1133 Stryker MEV is the ambulance version of the Stryker IAV, and it was designed to provide medical treatment and evacuation support to ground troops in complex terrain and urban environments. (GDLS)



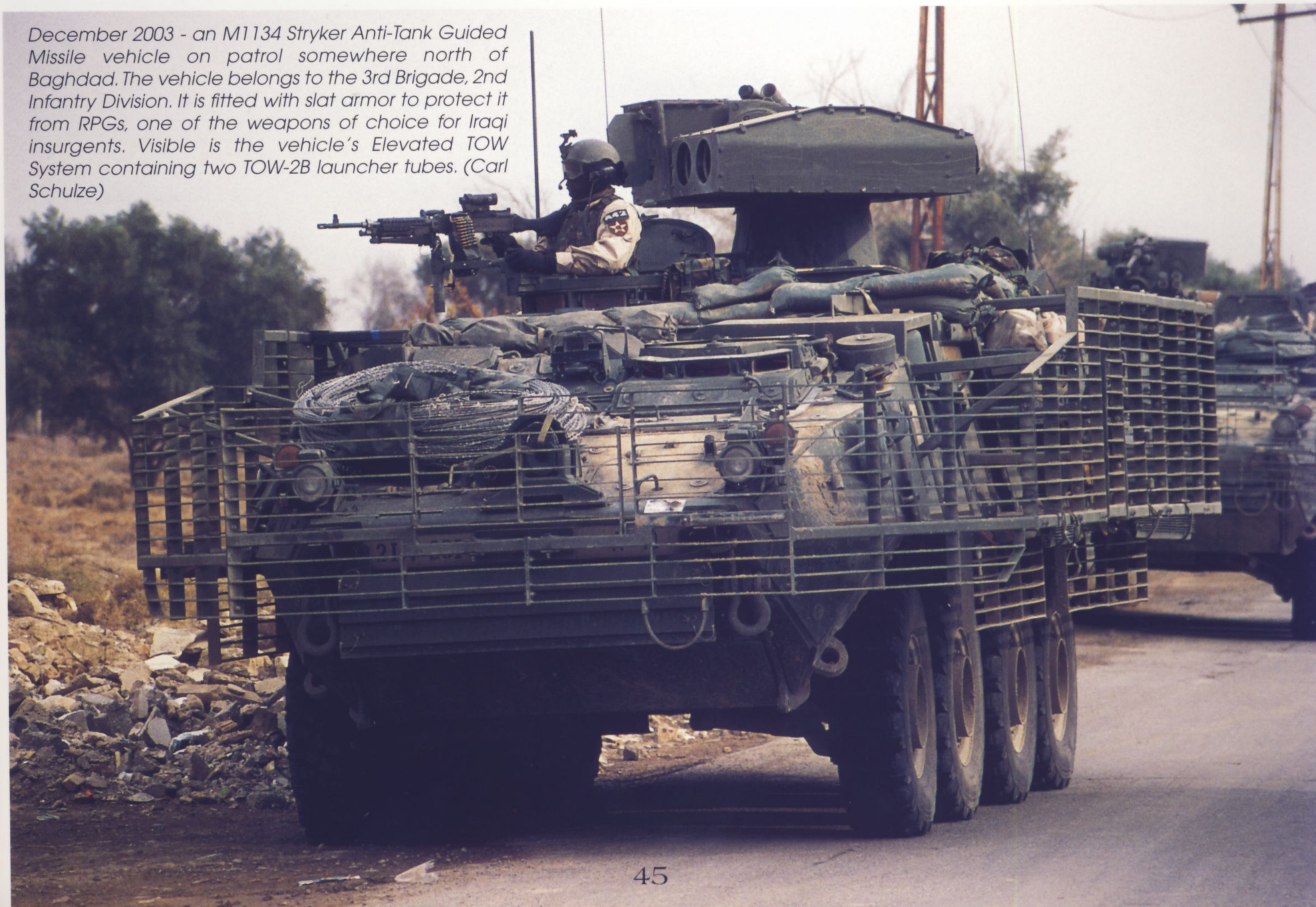
This M1133 Stryker MEV belongs to the 4th Squadron, 2nd Stryker Cavalry Squadron, and was seen during Exercise "Cougar Steel 06". Note the two wire cutters mounted on the left side of the vehicle and the 66mm M6 four-tube smoke discharger systems of the vehicle. (Ralph Zwilling)

The M1134 Stryker Anti-Tank Guided Missile Vehicle

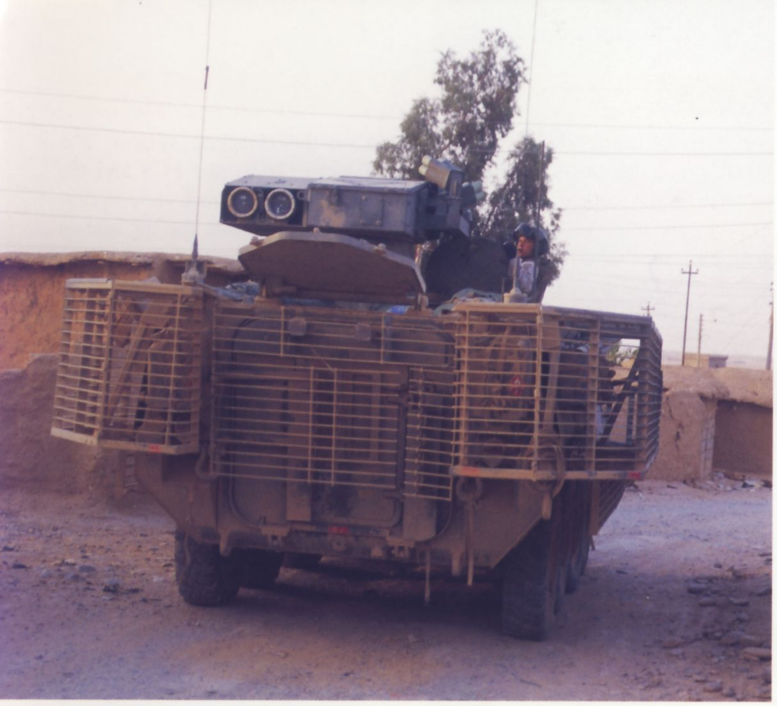
The M1134 Stryker Anti-Tank Guided Missile Vehicle is the prime weapon system of SBCT Anti-Armor Companies. It is also used as an interim solution within MGS Platoons of Rifle Companies up till the time enough M1128 Stryker MGSs are available. In this case, an SBCT can field 36 M1134 Stryker ATGMs (27 of these are interim). The M1134 Stryker ATGM is based on the M1126 ICV, but it is fitted with the Elevated TOW System (ETS) instead of the Protector RWS. The ETS provides the vehicle with an effective long-range capability of destroying enemy armor beyond the effective range of tank guns by day or night. The TOW missile system has a maximum effective range of 3750m. With the TOW-2B BGM-71F anti-armor missile, all known armor can be destroyed. The missile operates in a "flyover shoot down" top attack mode and features two explosively formed projectile (EFP) warheads. These EFP warheads detonate simultaneously, one directed downwards and the other slightly offset to give an increased hit probability. The warhead material is designed to generate pyrophoric effects within the damaged target. Another missile available within SBCT units is the TOW-2A Bunker Buster. The TOW Bunker Buster features a fragmentation HE bulk warhead that can breach or destroy enemy fortifications. The warhead is able to blast through 203mm of double reinforced concrete walls and is more then a match for earth and timber bunkers.

Ten spare missiles are stored inside the M1134 Stryker ATGM in two different racks in the rear compartment. Together with two missiles ready to launch in the launcher tubes of the ETS, this brings the number of available missiles per vehicle to 12. The ETS is mounted near the rear of the vehicle on the roof, above the space between the two rear axles and slightly offset to the left. The ETS consists of the elevation system, on which is mounted the Modified Improved Target Acquisition System (MITAS), and to the left side of the MITAS is the twin missile launcher. The sensors of the MITAS are located in an armor-protected enclosure with an armored door at the front that protects them from damage when not in use. The enclosure is centrally mounted on the elevation system. The MITAS includes the Target Acquisition System (TAS), the FCS and the Battery Power Source. The TAS integrates CCD TV direct-view optics, second-generation FLIR Night Vision Sight (NVS), missile tracker, and an eye-safe laser rangefinder. The MITAS allows target detection, acquisition and fire control by day or night and under all weather conditions. Both CCD TV day and FLIR NVS sights can be used in two fields of view - wide and narrow. In the surveillance mode the magnification of the FLIR NVS can be doubled. On the right side of the MITAS sensor enclosure are mounted four M6 four-tube 66mm smoke grenade dischargers. The ETS can be rotated 360°, and for firing the launcher mounted on the left can be elevated from –20° to +30°.

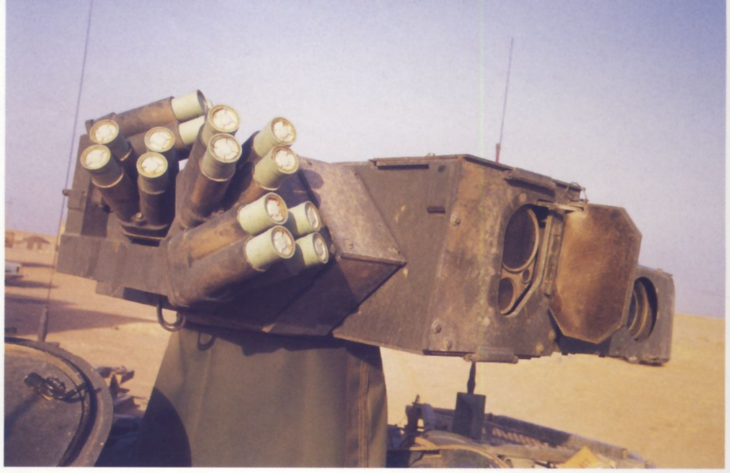
Loading of the twin-tube launcher is done manually by hand through a large one-piece hatch in the roof of the rear compartment, but for loading the launcher must be elevated to +40°. Firing is only possible when the launcher is in the raised position and is manually locked. In order to decrease the vehicle's height for transportation in aircraft, the ETS can be lowered electrically by 550mm. The M1134 can move with the ETS in the raised position and lowering prior to movement is not required. The FCS guides the missile flight and allows the gunner to lock onto the thermal image of a target. It also contains embedded training circuitry for sustainment training and advanced built-in test equipment that provides fault detection and isolation capabilities. The control panel of the ETS is mounted in front of the gunner's seat, which is situated in the vehicle hull below the ETS. As secondary armament and for close-range defense, the M1134 Stryker ATGM can be fitted with a 7.62mm M240B MG mounted in front of the commander's cupola. When firing the TOW missile system, the MG must be folded down into the stowed position. The crew of the M1134 Stryker ATGM consists of the vehicle commander, gunner, loader and vehicle driver.



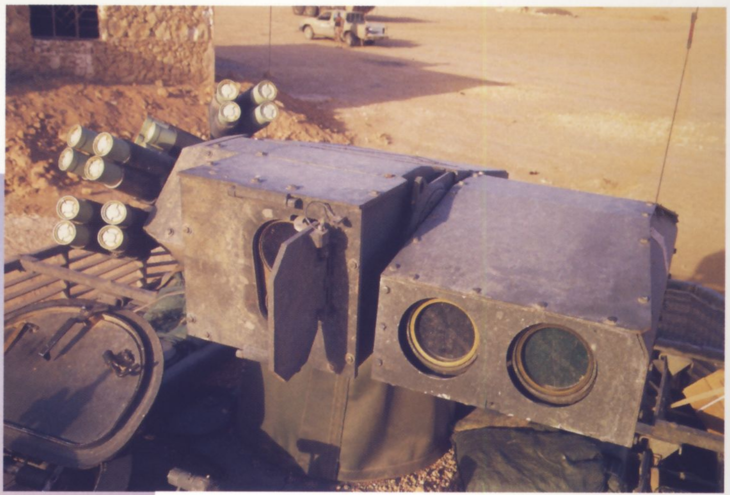
December 2003 - an M1134 Stryker Anti-Tank Guided Missile vehicle on patrol somewhere north of Baghdad. The vehicle belongs to the 3rd Brigade, 2nd Infantry Division. It is fitted with slat armor to protect it from RPGs, one of the weapons of choice for Iraqi insurgents. Visible is the vehicle's Elevated TOW System containing two TOW-2B launcher tubes. (Carl Schulze)

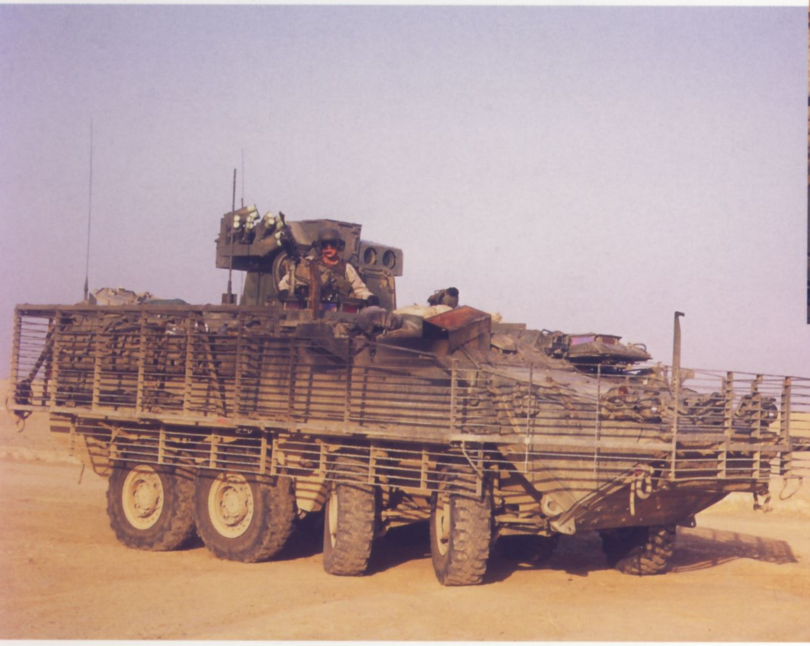


An M1134 Stryker ATGM vehicle on patrol in northern Iraq. It belongs to D Company "Demons", 52nd Infantry Regiment. In view is the large hatch over the rear compartment. During antitank operations the hatch is used by the loader to reload the TOW-2B missile launcher tubes. (Carl Schulze)



Close-up of the ETS, which consists of the elevation system, Modified Improved Target Acquisition System, and to the left side of the MITAS is the mounted twin missile launcher. The MITAS sensor package includes CCD TV direct-view optics, second-generation FLIR NVS, missile tracker, and an eye-safe laser rangefinder. MITAS allows target detection, acquisition and fire control by day or night under all weather conditions. (Carl Schulze)



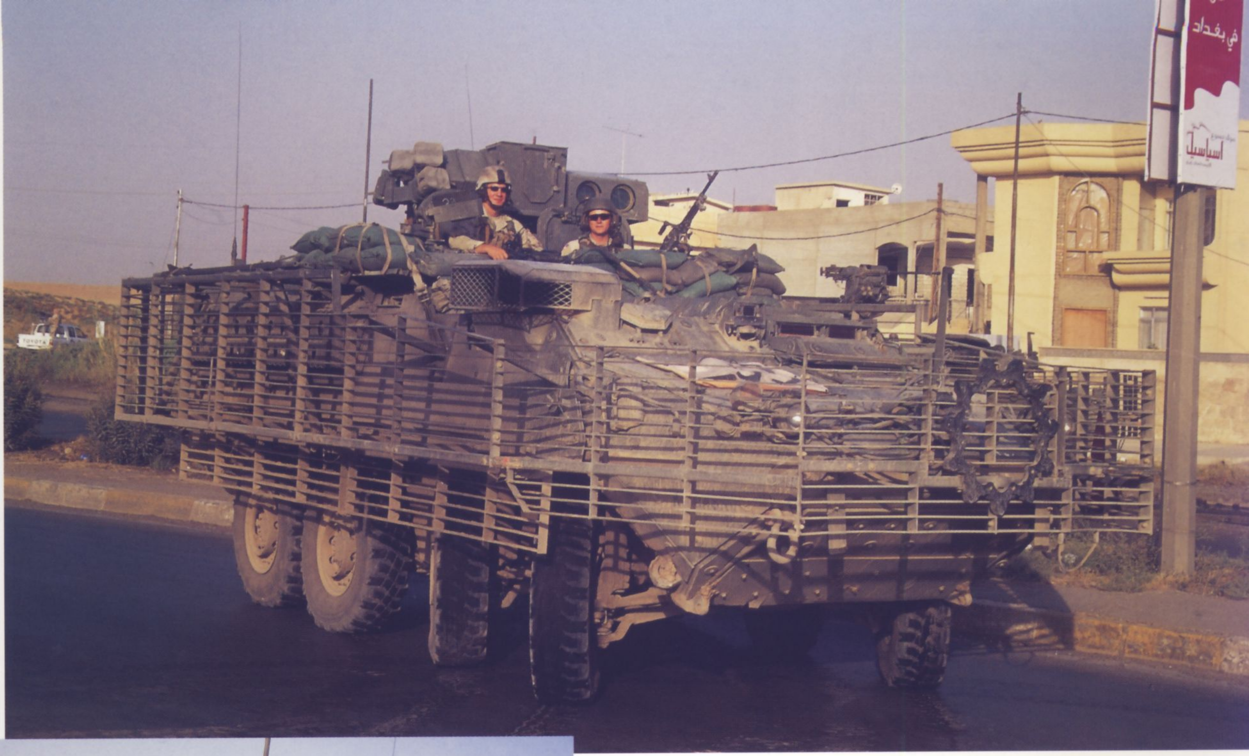


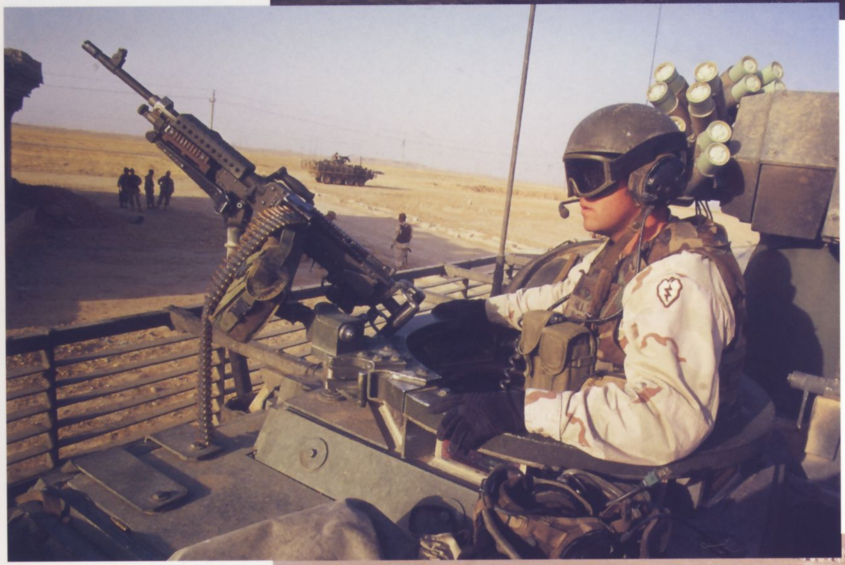
This M1134 Stryker ATGM vehicle of D Company "Demons", 52nd Infantry Regiment, was seen somewhere south of Mosul in 2005. By then the unit was the anti-armor company of the 1st Brigade, 25th Infantry Division. (Carl Schulze)

Specific technical data for the M1134 Stryker Anti-Tank Guided Missile Vehicle

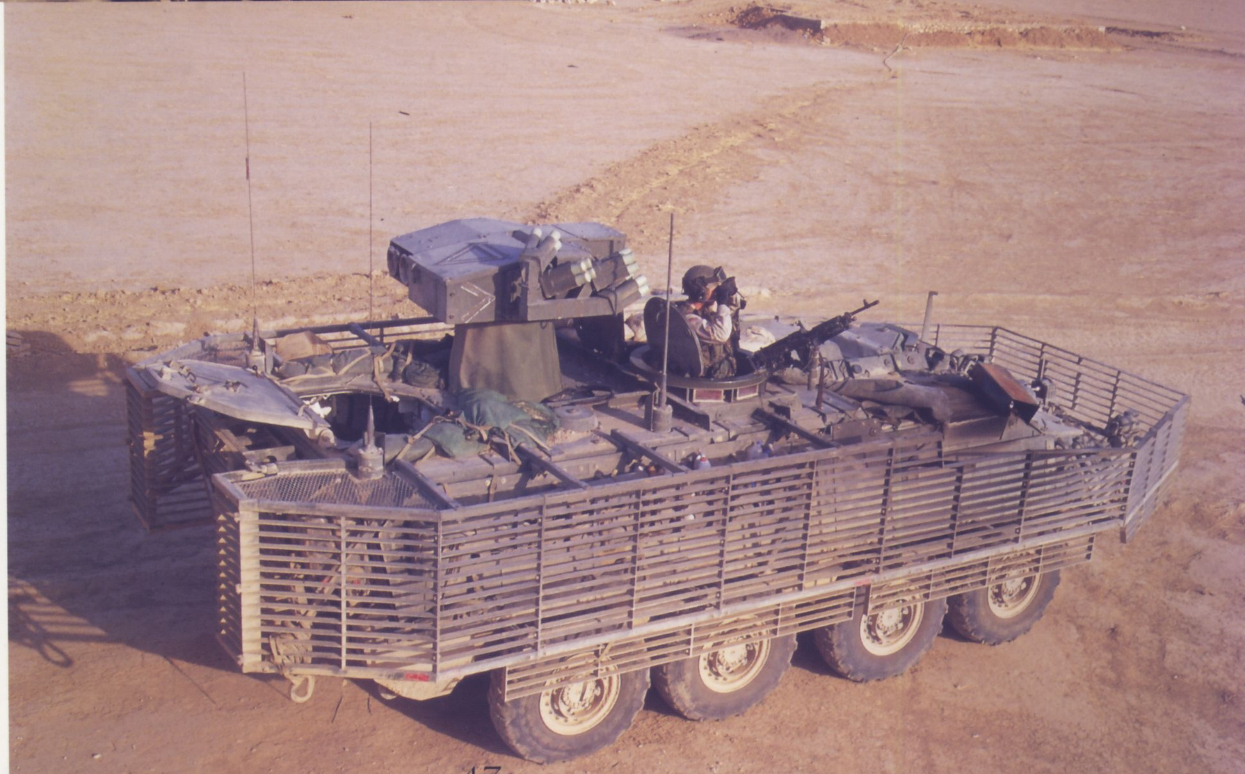
Crew:	4 (commander, gunner, loader and driver)
Combat weight:	18,555kg
Curb weight:	17,385kg
Maximum towed load:	22,680kg
Overall length:	7289mm
Overall width:	3805mm (including personal equipment)
Overall height:	3032mm
Armament:	1x Elevated TOW System with twin missile launcher (MITAS and FCS) 4x M6 66mm four-tube smoke discharger systems 1x 7.62mm M240B MG
On-board ammunition:	12x TOW missiles 2000 rounds of linked 7.62mm M80/M62 ammunition 16x smoke grenades (mix of M76 and L8A3)
C4ISR structure:	1x AN/VRC-87F ASIP radio, 1x AN/VRC-91F ASIP radio, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, Embedded Training Module, AN/PSN-11 PLGR (or its replacement, the DAGR) and VIS/VIC
Other systems:	Battery Charger, AN/PAS-13 TWS for secondary armament and AN/PVS-6 MELIOS

An M1134 Stryker ATGM of the 3rd Battalion, 23rd Infantry Regiment, provides cover for a cordon and search operation in Mosul. The four-man crew of the M1134 Stryker ATGM consists of the driver, vehicle commander, gunner and loader. (Carl Schulze)



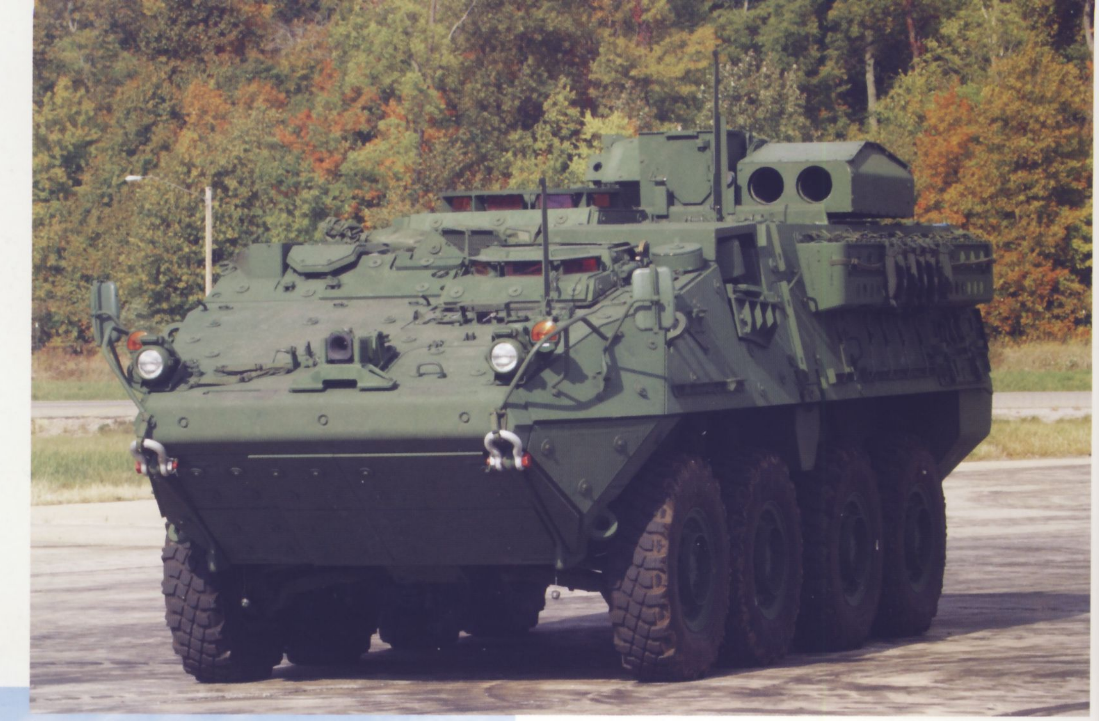


Close-up of an M1134 Stryker ATGM commander of D Company "Demons", 52nd Infantry Regiment. He is manning the vehicle's secondary armament, a 7.62mm M240B MG mounted in front of his cupola. When firing the TOW missile system, the MG must be folded down. (Carl Schulze)

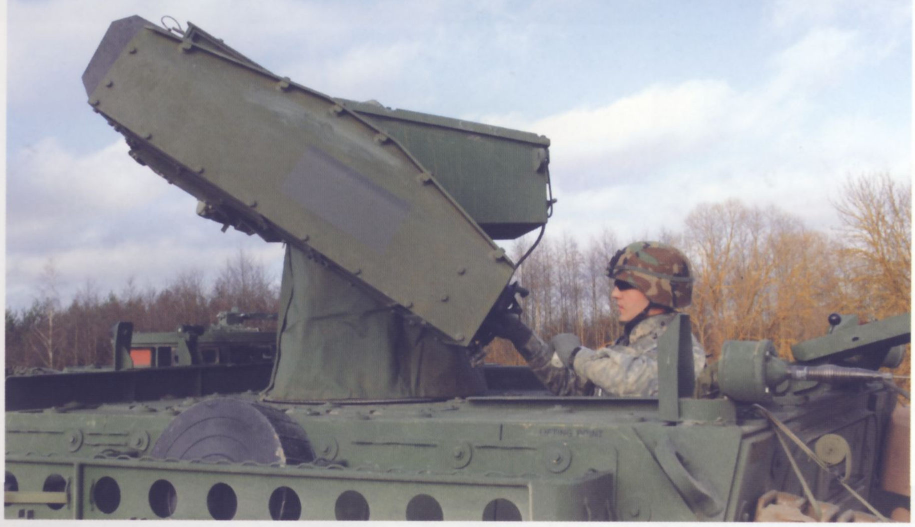


This picture illustrates how the ETS is mounted on the rear of the vehicle's roof, above the space between the two rear axles and slightly offset to the left. On the right side of the MITAS are mounted four M6 66mm four-tube smoke discharger systems. (Carl Schulze)

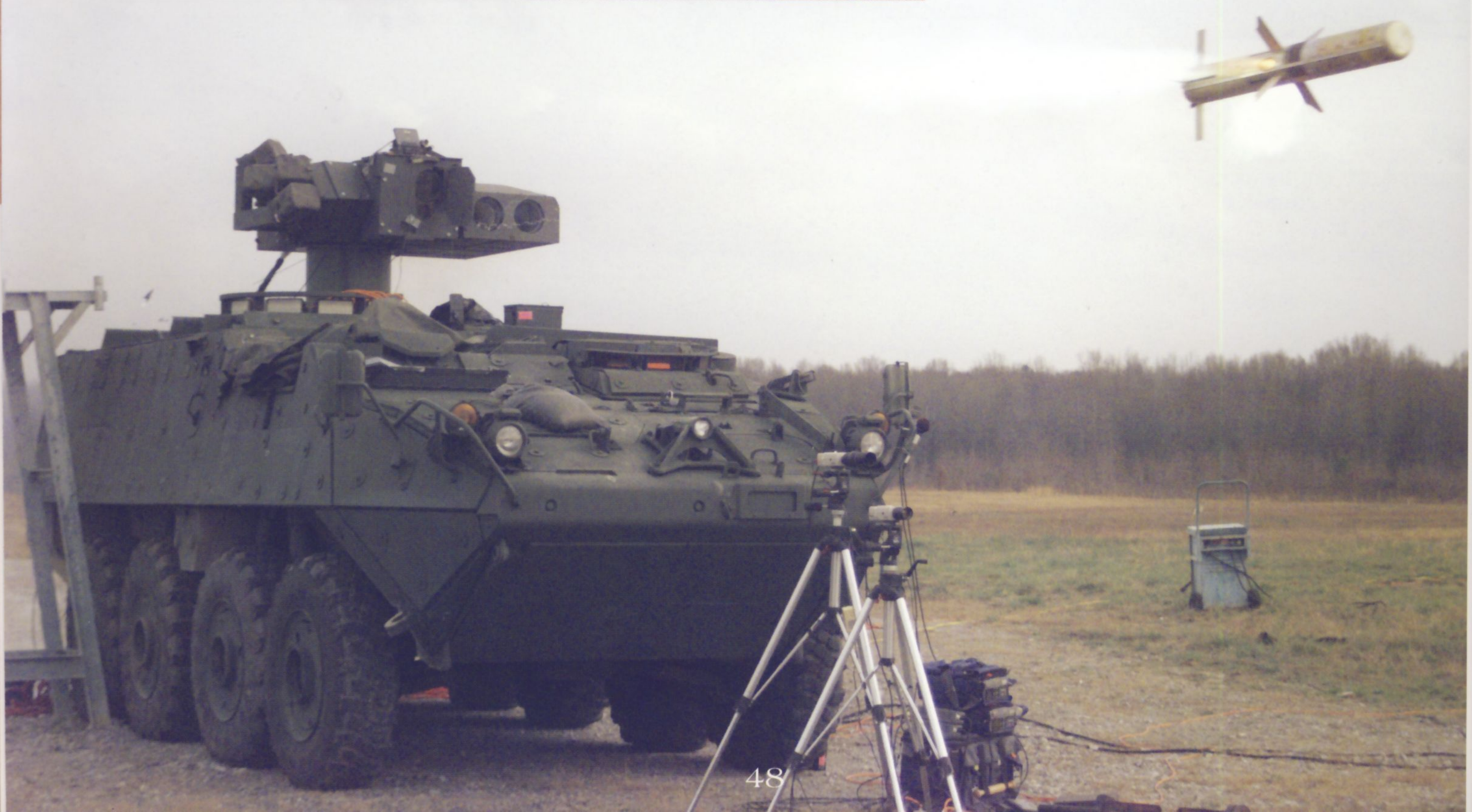
This manufacturer's picture shows an LRIP M1134 Stryker ATGM vehicle with the ETS lowered. Firing of the ETS is only possible when the launcher is in the raised position and manually locked. In order to decrease the vehicle's height for transportation in aircraft, the ETS can be lowered electrically by 550mm. During operations, troops seldom lower the ETS. (GDLS)

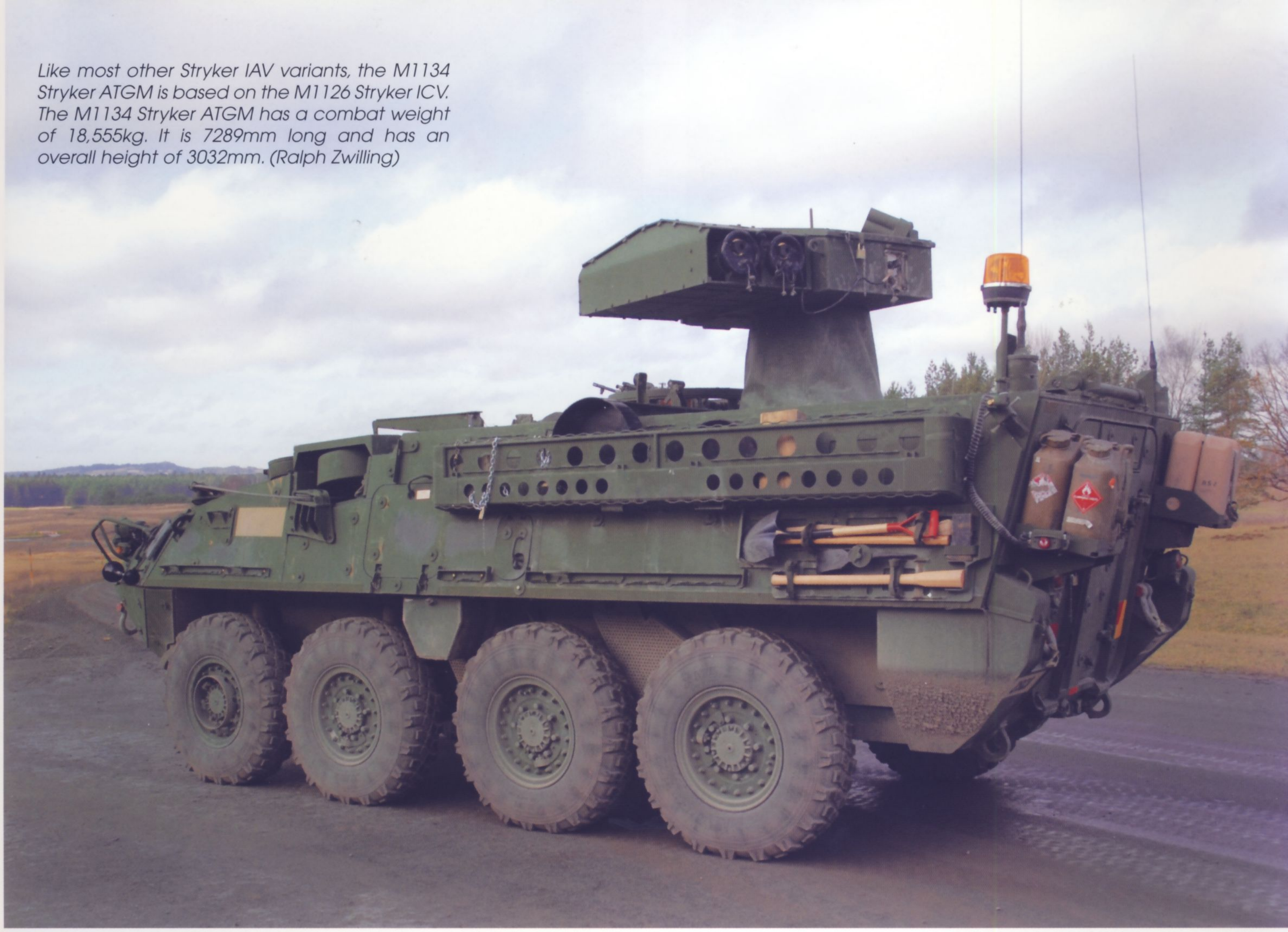


Loading of the twin-tube launcher of the ETS is done manually by hand through the large one-piece hatch in the rear compartment roof. When firing, the ETS launcher can be elevated from –20° to +30°, while for loading the launcher is elevated to +40°. (Ralph Zwilling)



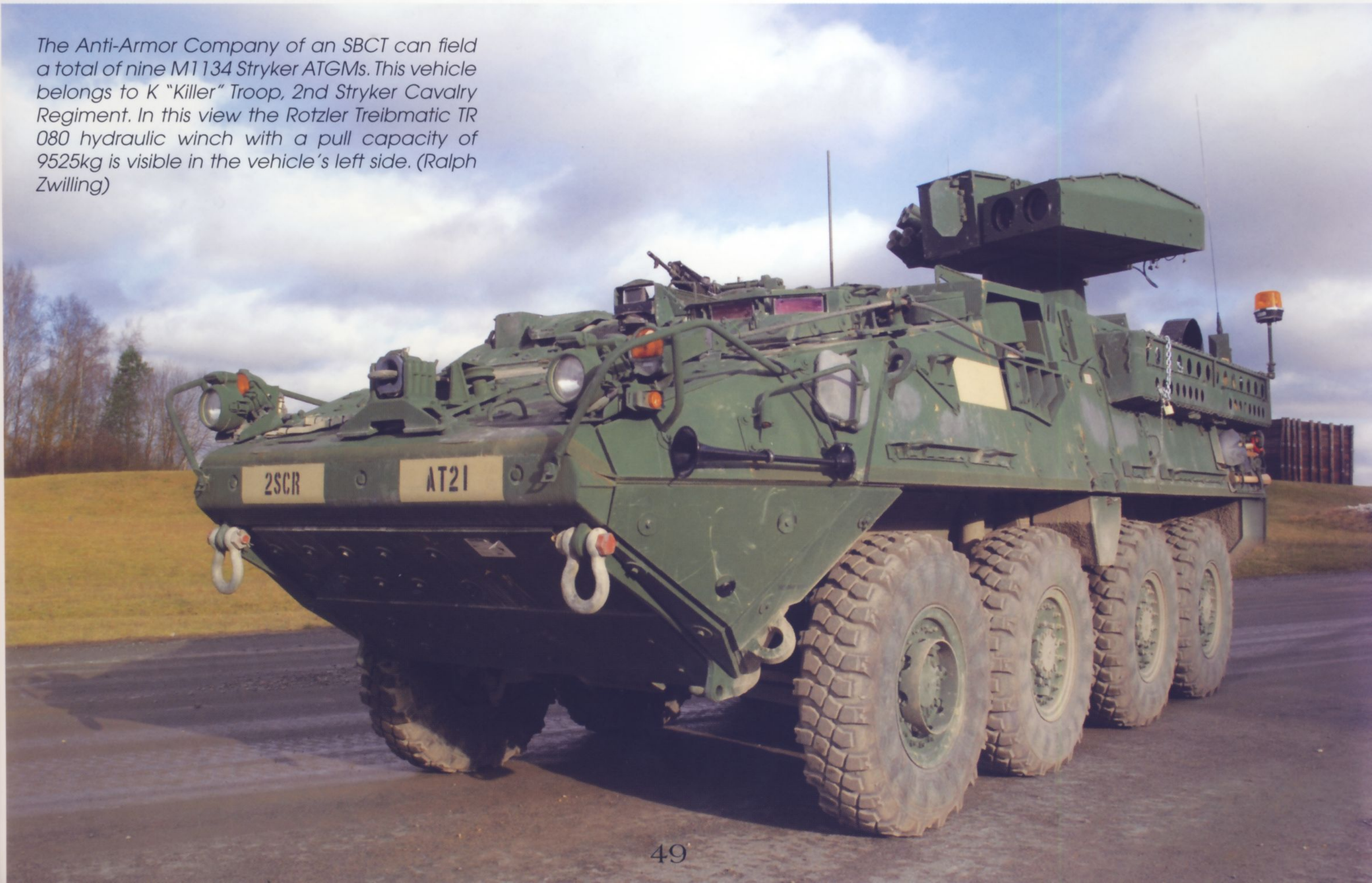
This picture was taken a split second after a TOW missile was launched from the ETS. The TOW missile system has a maximum effective range of 3750m. With the TOW-2B BGM-71F anti-armor missile, all known armor can be destroyed. The TOW-2A Bunker Buster features a fragmentation HE bulk warhead that can breach or destroy enemy fortifications, blasting through up to 203mm of double reinforced concrete. (GDLS)



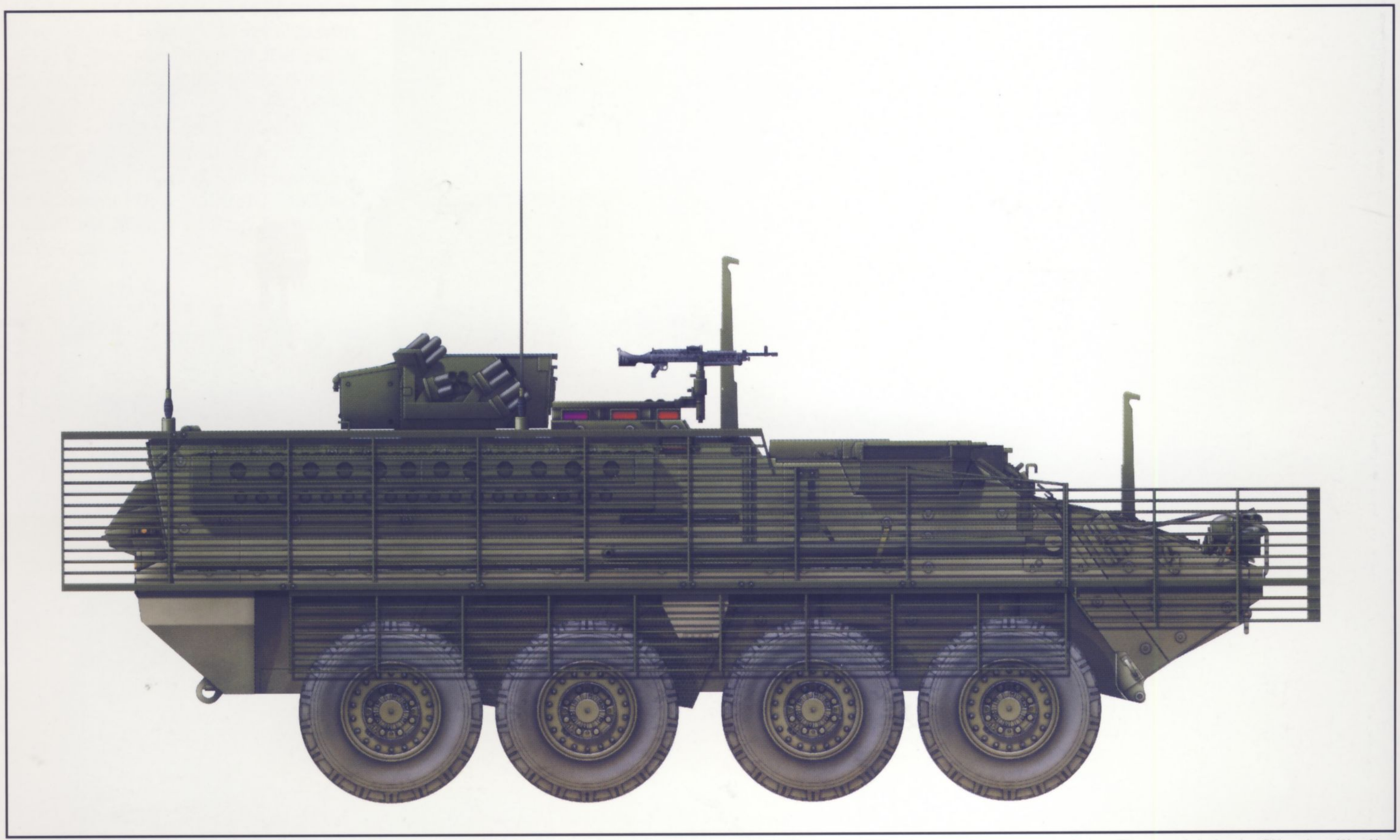


Like most other Stryker IAV variants, the M1134 Stryker ATGM is based on the M1126 Stryker ICV. The M1134 Stryker ATGM has a combat weight of 18,555kg. It is 7289mm long and has an overall height of 3032mm. (Ralph Zwilling)

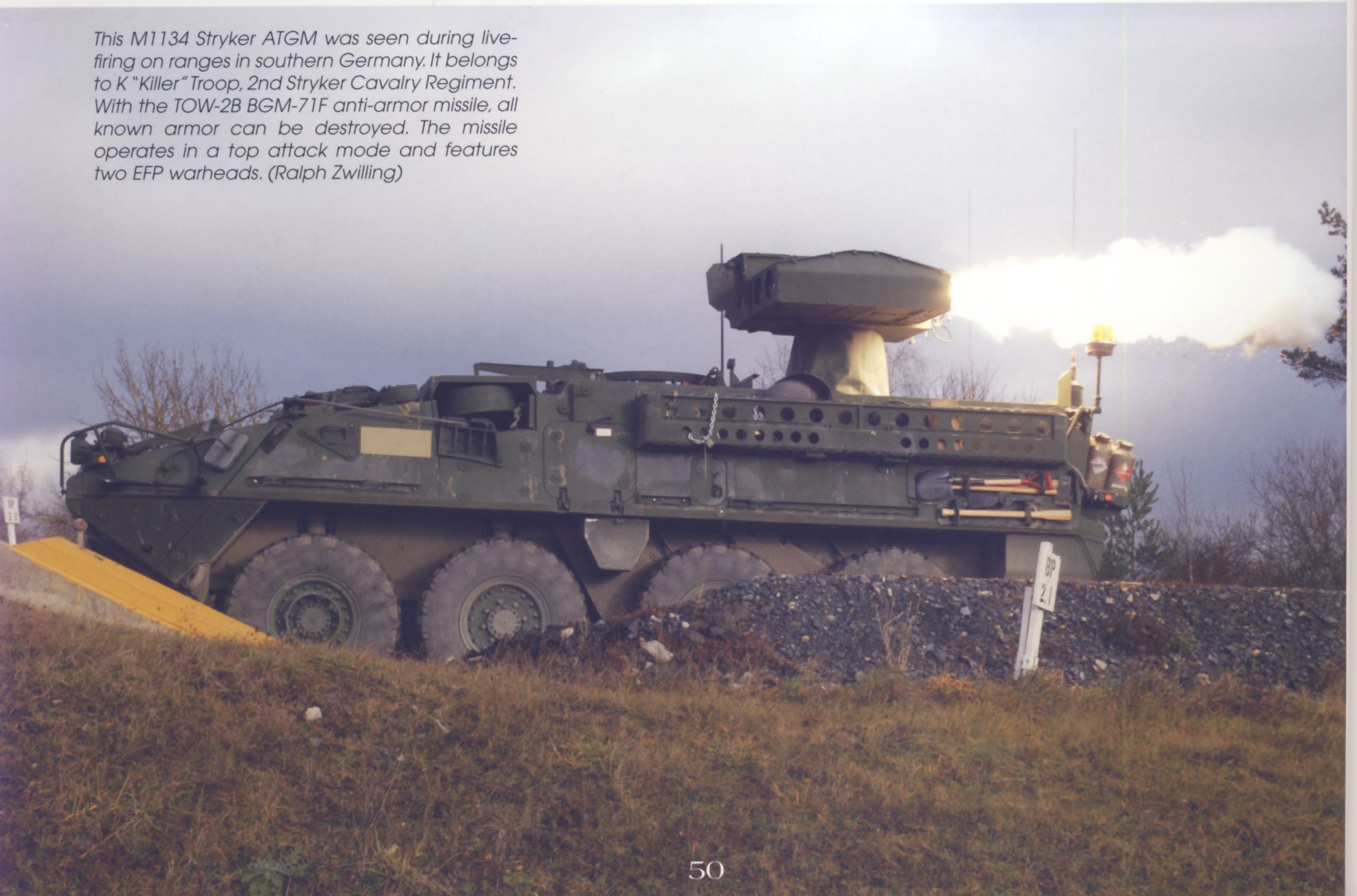
TOW
missile
750m.
le, all
Bunker
rhead
ations,
orced



The Anti-Armor Company of an SBCT can field a total of nine M1134 Stryker ATGMs. This vehicle belongs to K "Killer" Troop, 2nd Stryker Cavalry Regiment. In this view the Rotzler Treibmatic TR 080 hydraulic winch with a pull capacity of 9525kg is visible in the vehicle's left side. (Ralph Zwilling)



The main weapon system of SBCT anti-armor companies is the M1134 Stryker Anti-Tank Guided Missile vehicle. The vehicle is fitted with the Elevated TOW System (ETS) seen here in the stowed position. The ETS provides the vehicle with an effective long-range capability to destroy enemy armor beyond the effective range of tank guns day or night. All M1134 Stryker ATGM vehicles deployed to Iraq are fitted with slat armor in order to protect them from the deadly effects of RPG warheads.



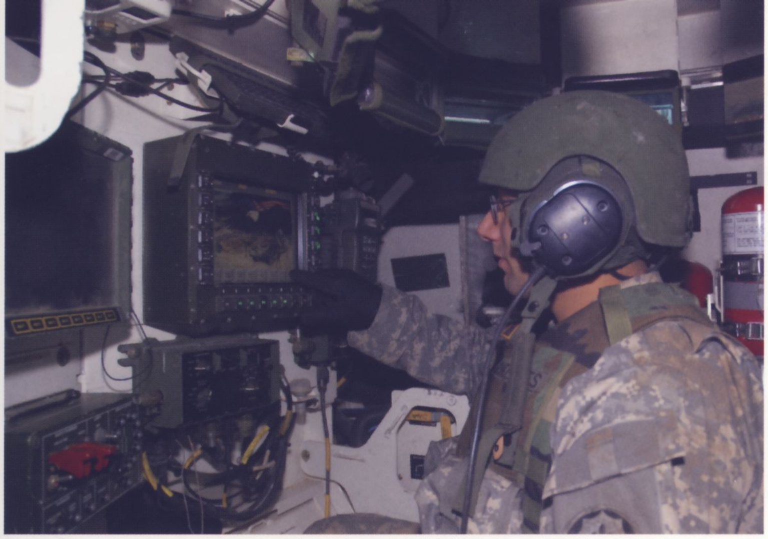
This M1134 Stryker ATGM was seen during live-firing on ranges in southern Germany. It belongs to K "Killer" Troop, 2nd Stryker Cavalry Regiment. With the TOW-2B BGM-71F anti-armor missile, all known armor can be destroyed. The missile operates in a top attack mode and features two EFP warheads. (Ralph Zwilling)

Her
see
terr

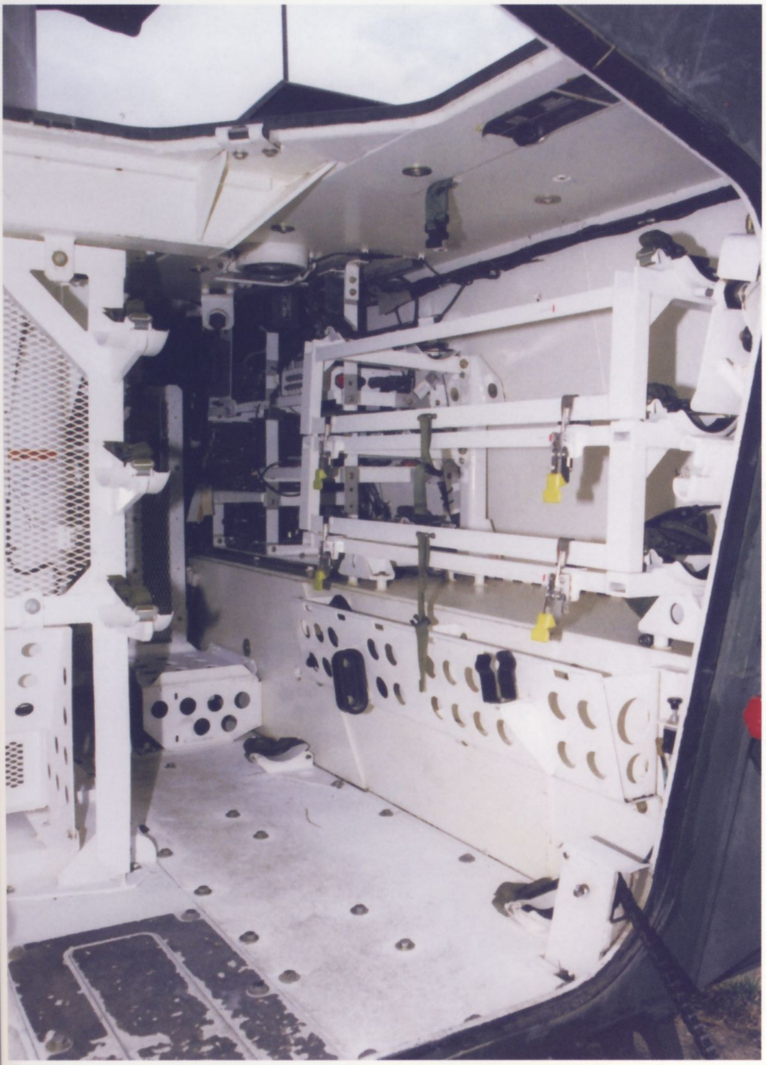
Anoth
Stryke
along
anoth

Within
just be
Zwilling

n the
estroy
armor

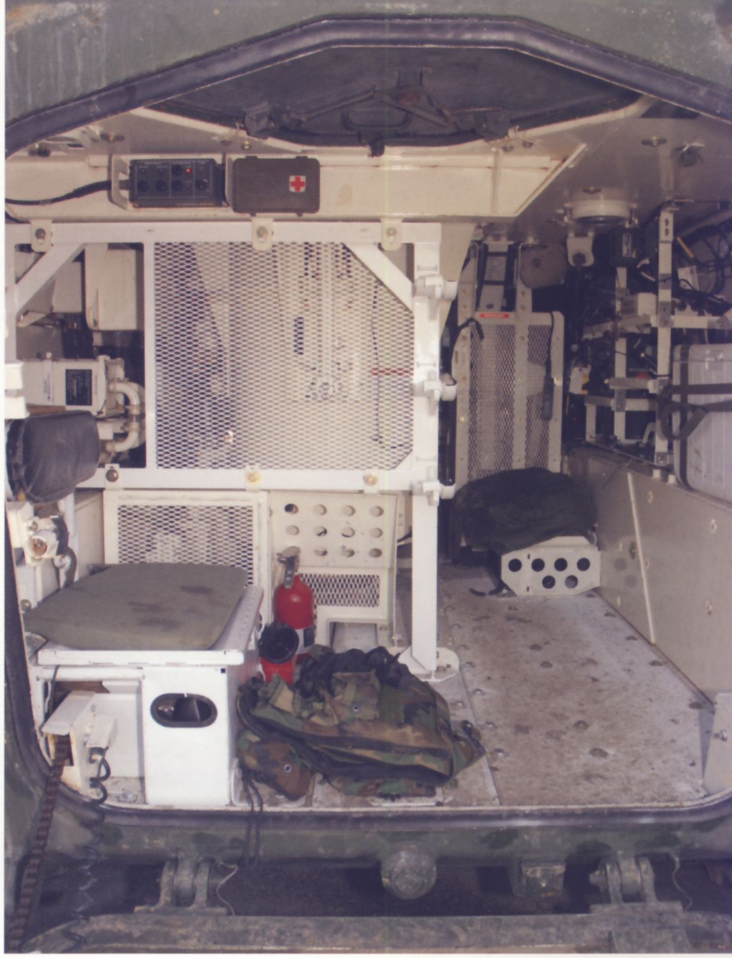


Here, the vehicle commander of an M1134 Stryker ATGM vehicle can be seen operating his FBCB2 Blue Force Tracker. To the right of the FBCB2 terminal, the AN/PSN-11 PLGR is visible. (Ralph Zwilling)

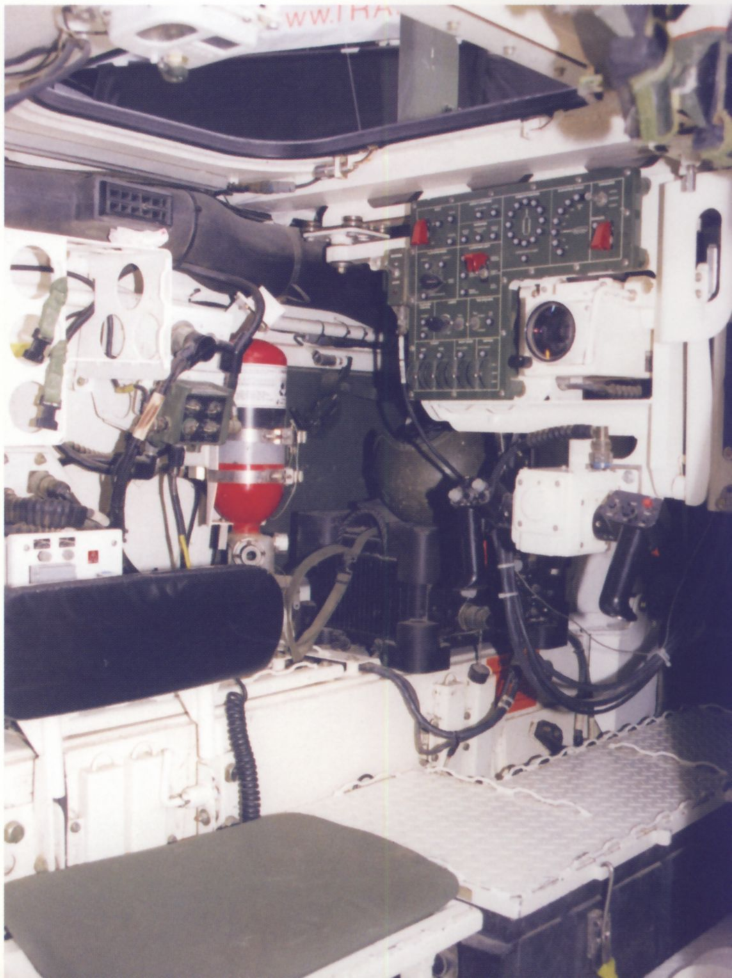


Another picture showing the interior of the rear compartment of an M1134 Stryker ATGM vehicle. Visible in the right side are six TOW missiles stored along the wall in mounting brackets while a seventh missile is stored in another set of mounting brackets on the floor. (Ralph Zwilling)

Within the M1134 Stryker ATGM, the gunner is seated to the left in the hull just below the ETS. The FCS of the MITAS is situated in front of his seat. (Ralph Zwilling)



View inside the rear compartment of an M1134 Stryker ATGM vehicle. On the left is the seat of the loader. If fully loaded with TOW missiles, the brackets in front of the wire mesh guard will accommodate three TOW missiles. In total, 12 TOW missiles can be carried by an M1134 Stryker ATGM (ten stored in the rear compartment and two loaded in the launcher). (Ralph Zwilling)



M1135 Stryker NBC Reconnaissance Vehicle

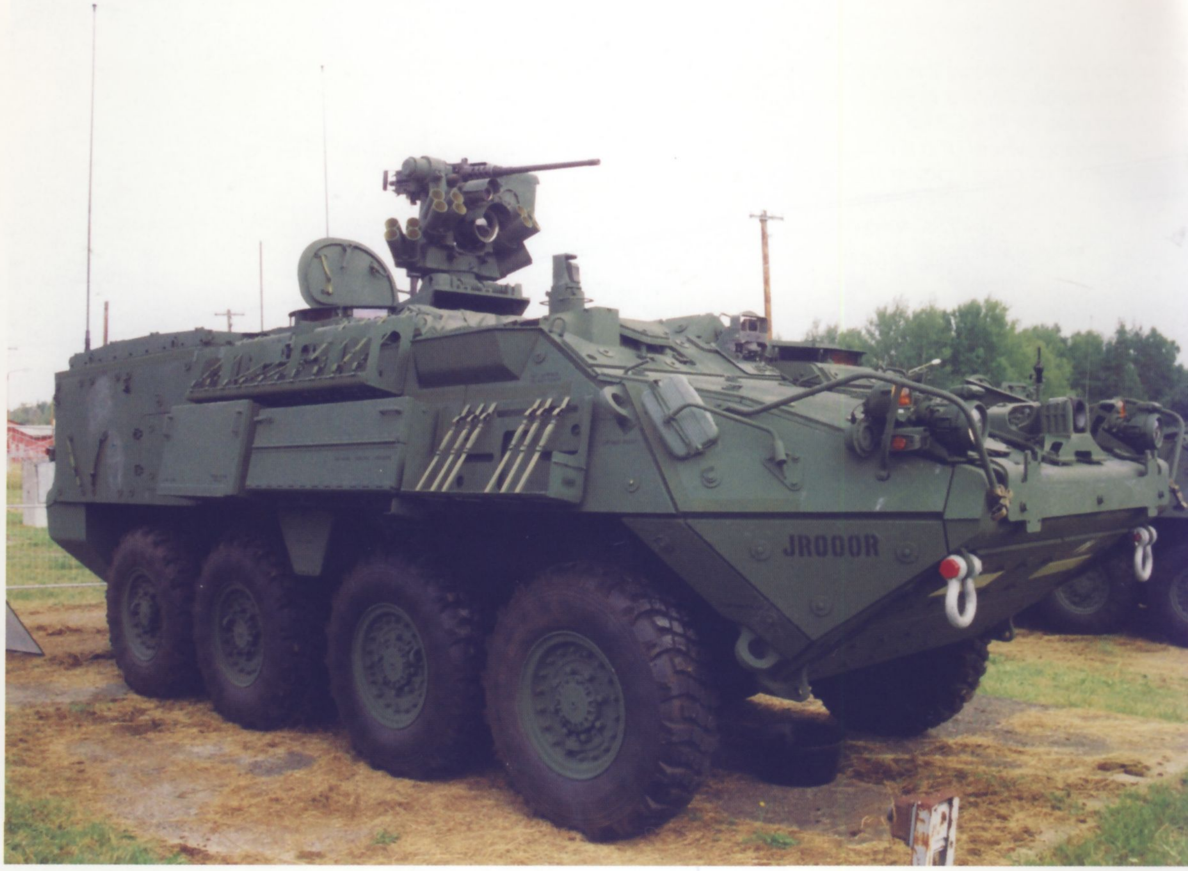
The M1135 Stryker Nuclear Biological and Chemical Reconnaissance Vehicle is also based on the M1126 Stryker ICV. The M1135 NBCRV is easily distinguished by the roof-mounted sensors and rear-mounted Double Wheel Sampling System. It replaces the M93A1 "Fox" NBCRS that at the time of writing is still fielded by most SBCTs. While it replaces the Fox, the M1135 Stryker NBCRV's sensor and laboratory equipment includes much of the Fox's proven state-of-the-art technology and its design was inspired by experience with the Fox produced by Rheinmetall Landsysteme GmbH of Germany. Basically, the M1135 Stryker NBCRV is a rolling laboratory that takes air, water and ground samples, which are then immediately analyzed by on-board equipment for signs of contamination by nuclear, chemical or biological weapons. The vehicle can fulfill its mission in all geographical areas, in adverse weather and under all types of battlefield conditions. In the future the M1135 Stryker NBCRV will be the principal manned, automated reconnaissance, surveillance, monitoring, marking, reporting and sampling system of the U.S. Army. It will not only be fielded in RSTA Squadrons of SBCTs, but also see service in corps and division-level NBC warfare elements.

The first M1135 Stryker NBCRV LRIP vehicle was handed over to the army on 6 December 2005. Up till March 2006, 17 LRIP vehicles had been produced. It is estimated the army will acquire a total of 42 M1135 Stryker NBCRVs. Full-rate production of the vehicle is planned to begin in the fourth quarter of 2007. Proven "Fox" technology integrated into the M1135 Stryker NBCRV includes the Double Wheel Sampling System, the M88 Automated Chemical Agent Detector and Alarm, the AN/VDR-2 Radiac Set and the Fox "tail" assembly. Among the new systems mounted in the M1135 Stryker NBCRV are the Chemical Biological Mass Spectrometer Block II (CMBS II), the Joint Biological Point Detection System (JBPDS), the Joint Services Lightweight Standoff Chemical Agent Detector (JSLSCAD), the METSMAN Meteorological System, the AN/UDR-13 Radiac Set, the AN/VDR-2 Radiac Set, and the Chemical Vapor Sampling System. Contamination data collected by the vehicle's NBC sensor suite is gathered by the NBC Sensor Processing Group (NBCSPG). This can be accessed via the commander's and surveyor's workstations, which are rugged flat-panel touch-screen laptops. Linked to the FBCB2, the NBCSPG can be used to transmit contamination information records to any unit within the SBCT or other units linked to the FBCB2 network. The vehicle has a crew of four. The driver and vehicle commander are situated in the same positions as the M1126 Stryker ICV, while the assistant surveyor is seated in the area where the squad leader is normally seated, and the surveyor is seated at the rear of the compartment. The M1135 Stryker NBCRV is the only vehicle of the Stryker IAV family fitted with a Climate Control and Over-Pressure System (CCOPS). The system supplies the vehicle interior with clean uncontaminated air that can be cooled if required, and by establishing overpressure in the vehicle, the CCOPS prevents contaminated air from entering the vehicle. In addition, the M1135 Stryker NBCRV is fitted with a comprehensive C4ISR suite similar to other vehicles of the Stryker family.

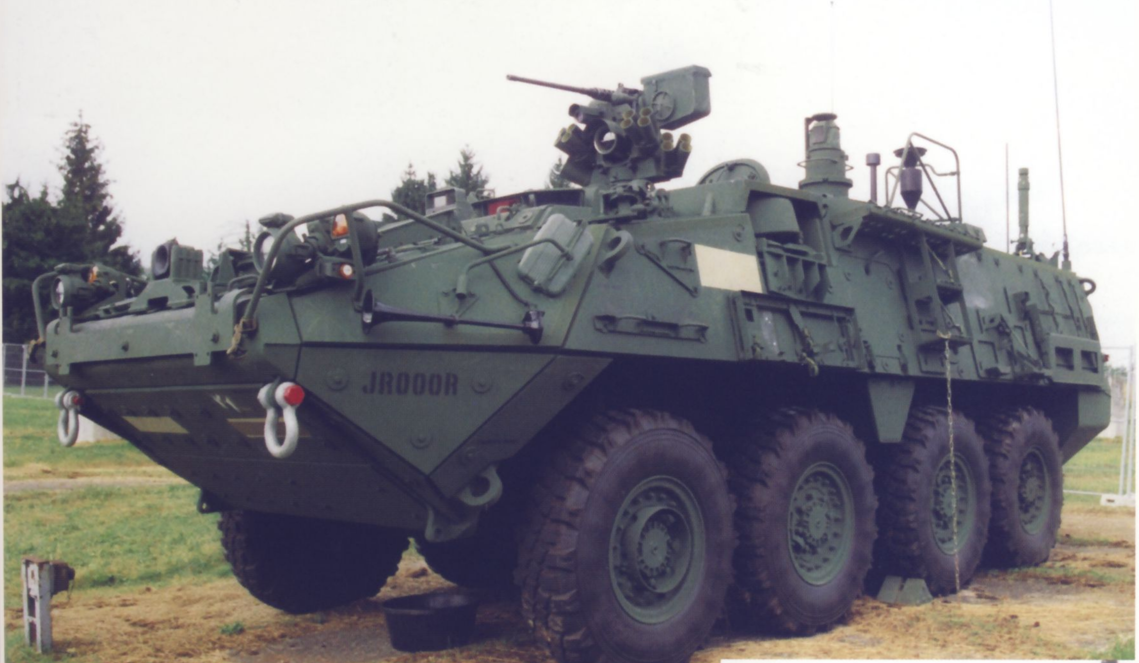
The first M1135 Stryker NBCRV LRIP vehicle was handed over to the U.S. Army on 6 December 2005. Here an M1135 Stryker NBCRV of the 4th Squadron, 2nd Stryker Cavalry Regiment, speeds down a track in a German training area. The vehicle can reach a top speed of 101km/h on firm surfaces and has a road range of 450km. This means the M1135 Stryker NBCRV can conduct reconnaissance missions lasting several hours without refueling in contaminated areas. (Ralph Zwilling)

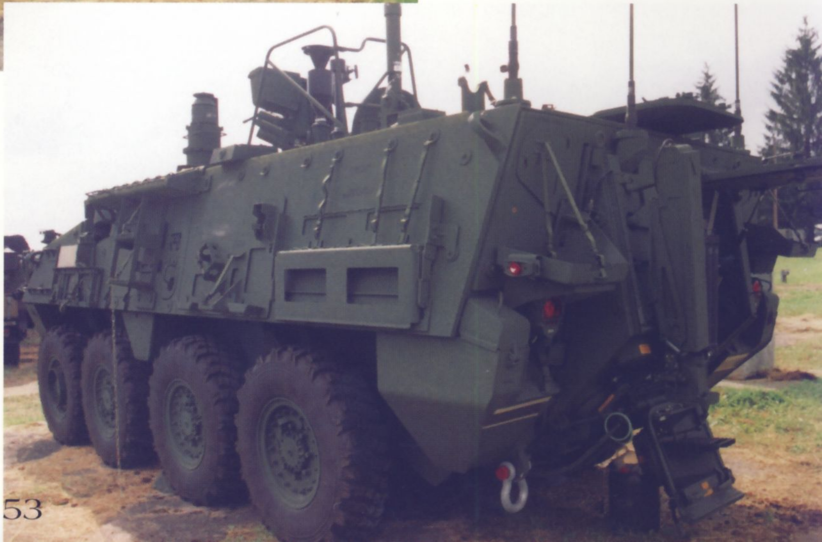
Specific technical data for the M1135 Nuclear Biological and Chemical Reconnaissance Vehicle

Crew:	2+2 (commander, driver, surveyor, assistant surveyor)
Combat weight:	19,353kg
Curb weight:	17,255kg
Maximum towed load:	22,680kg
Overall length:	7315mm
Overall width:	2870mm
Overall height:	2692mm
Armament:	1x 12.7mm M2 MG or 1x 40mm Mk.19 MOD3 automatic grenade launcher 4x M6 66mm four-tube smoke discharger systems
On-board ammunition:	2000 rounds of 12.7mm (M8 API and M20 API-T linked) 480 rounds of 40mm (M430 HEDP) 16x 66mm smoke grenades (M76 IR and L8A3)
C4ISR structure:	2x AN/VRC-96E ASIP radios, AN/UYK-128 FBCB2, AN/VSQ-2 (V) 1 EPLRS, Embedded Training Module, NBC Sensor Processing Group (NBCSPG) including two rugged flat-panel touch-screen notebooks, AN/PSN-11 PLGR (or its replacement, the DAGR), Lightweight Laser Printer (LLP) and VIS/VIC
Other systems:	Chemical Biological Mass Spectrometer Block II, Joint Biological Point Detection System, Joint Service Lightweight Standoff Chemical Agent Detector, METSMAN, Chemical Vapor Sampling System, Double Wheel Sampling System, Marker Port, Chemical Probe Port, Material Port, Climate Control Overpressure System, Driver's Alert Panel, commander's workstation, surveyor's workstation



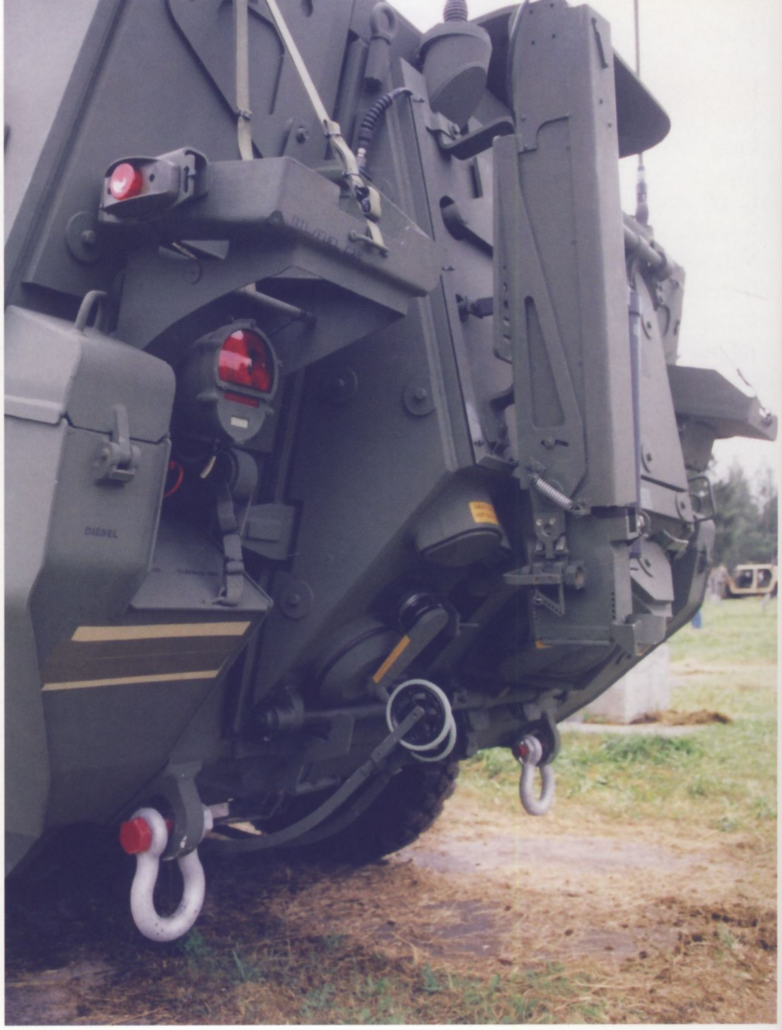
Basically, the M1135 Stryker NBCRV is a rolling laboratory that takes air, water and ground samples that are immediately analyzed with on-board equipment for signs of contamination by NBC weapons. It has a combat weight of 19,353kg and a curb weight of 17,255kg. The vehicle is 7315mm long, 2870mm wide and 2692mm high. (Ralph Zwilling)

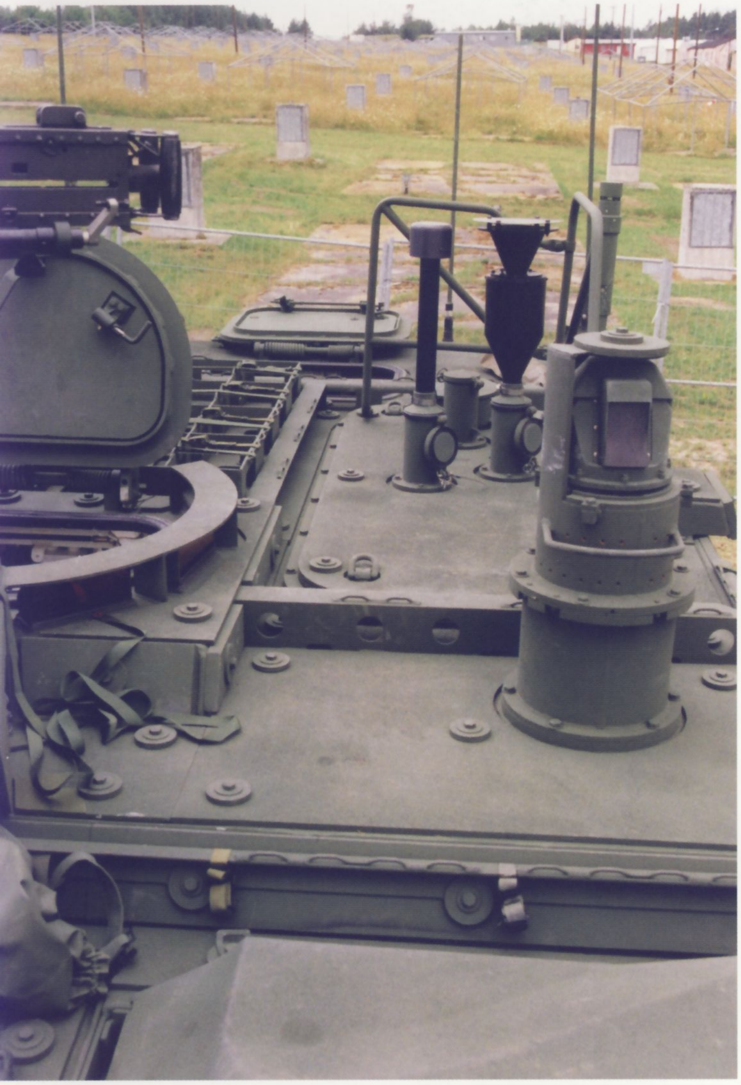




The so-called "Fox" tail is mounted at the rear of the M1135 Stryker NBCRV. It contains the Double Wheel Sampling System (DWSS), as well as a sampling device and sampling gripper for picking up and transporting samples. (Ralph Zwilling)

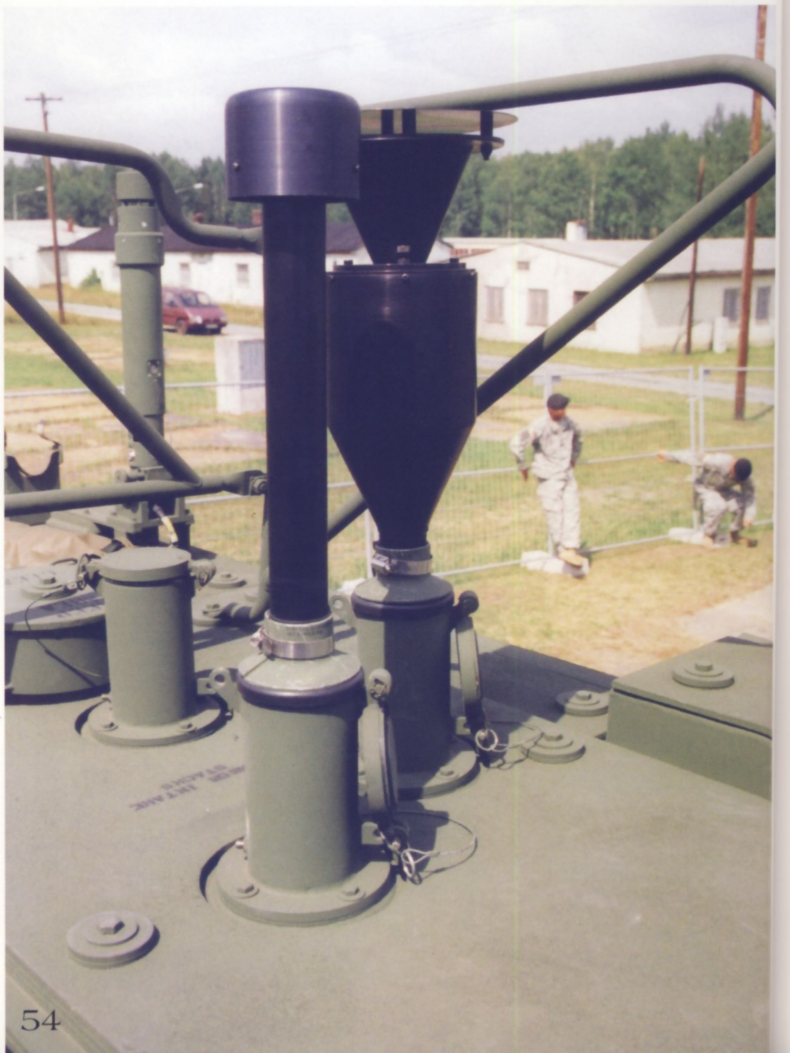
This picture shows the DWSS. Mounted at the rear of the M1135 Stryker NBCRV, it is an automated system that collects chemical samples for the CBMS II to identify chemical contaminants. One sampling wheel at a time is run along the ground while the other is lifted to press against the membrane of the head of the heat chemical probe. The silicone coating of the sampling wheels absorbs chemicals, retaining them until the heated probe vaporizes them for analysis by the CBMS II. (Ralph Zwilling)

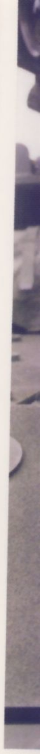




View of the roof of an M1135 Stryker NBCRV. Note that the vehicle does not feature the squad leader's hatch that exists on several other Stryker variants. The sensor for the Joint Services Lightweight Standoff Chemical Agent Detector is situated in the area where the hatch is usually situated. The JSLSCAD provides fully automatic, line-of-sight, standoff chemical vapor detection for point and area surveillance, contamination avoidance or reconnaissance operations. It is capable of day and night, real-time, on-the-move, 360° coverage out to a distance of 5000m. The system can detect nerve, blister, and blood agents. (Ralph Zwilling)

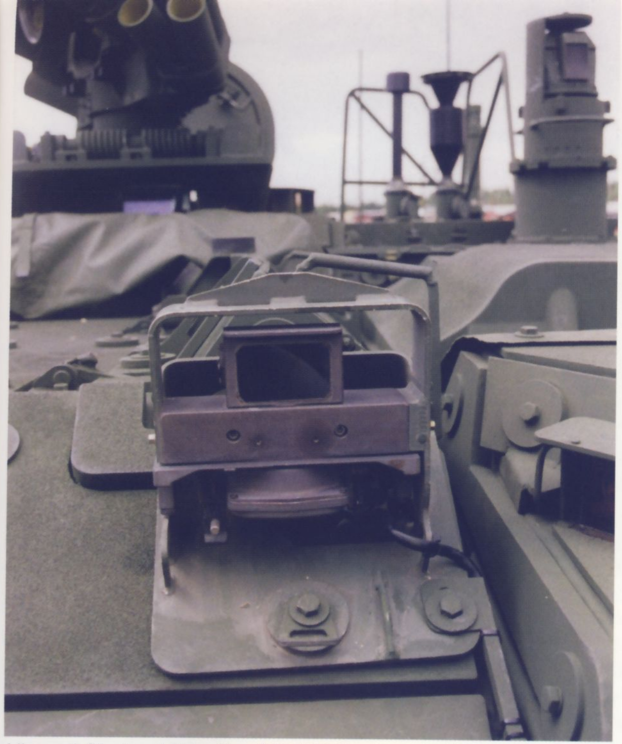
Close-up view of the sensor equipment of the Joint Biological Point Detection System. The JBPDS is a bio-detection instrument suite providing automatic detection and identification of airborne biological agents at very low levels. The system uses laser-induced fluorescence and its trigger/detector continuously evaluates the atmospheric background for traces of potential biological agents. (Ralph Zwilling)



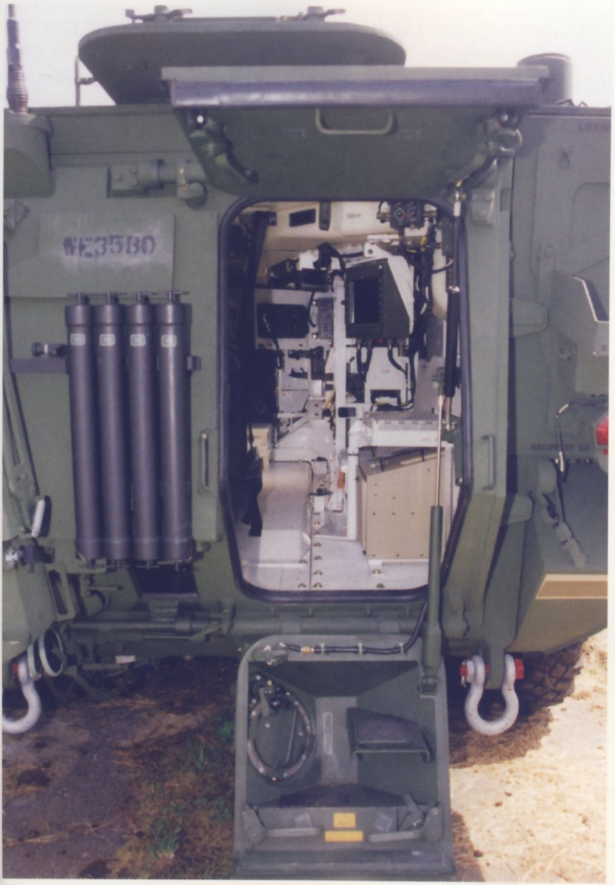


Like
the
of
the
ope
and
(Ra

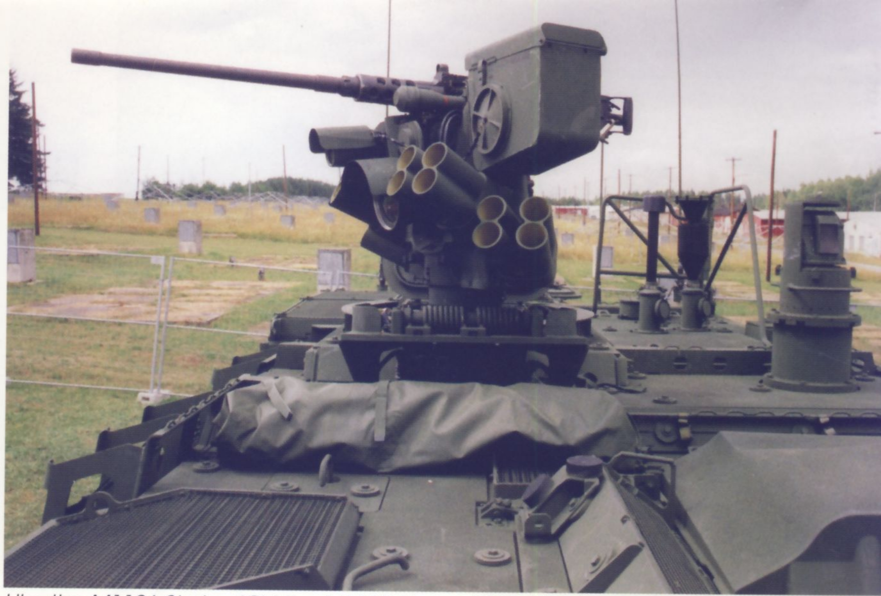
The M
powe
IAVs.
incorp
Chem
mater
dropp
is situa



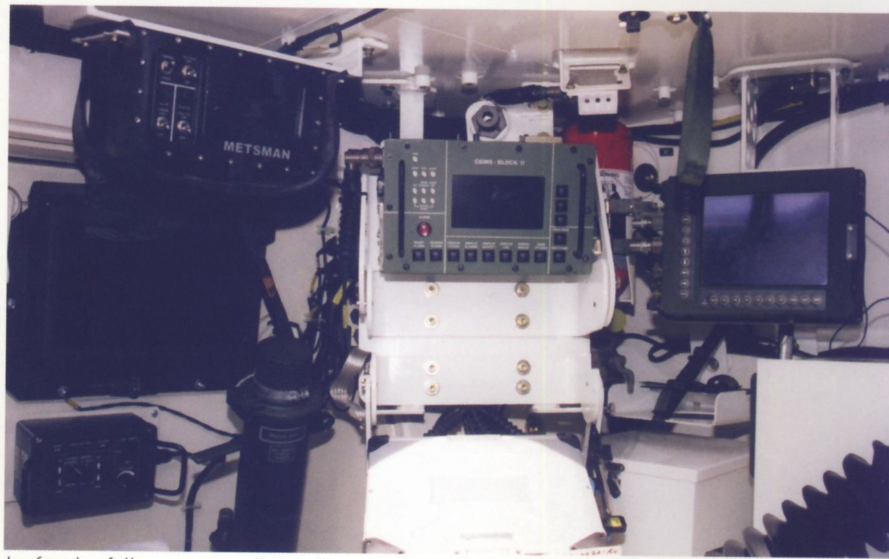
Like all Stryker IAVs, the M1135 Stryker NBCRV is fitted with the Raytheon AN/VAS-5 DVE, its sensor mounted to the right of the driver's hatch. The DVE is a passive, uncooled thermal imaging system allowing continuous vehicle operation by day or night and in the presence of natural and manmade obscurants such as smoke, fog or dust. (Ralph Zwilling)



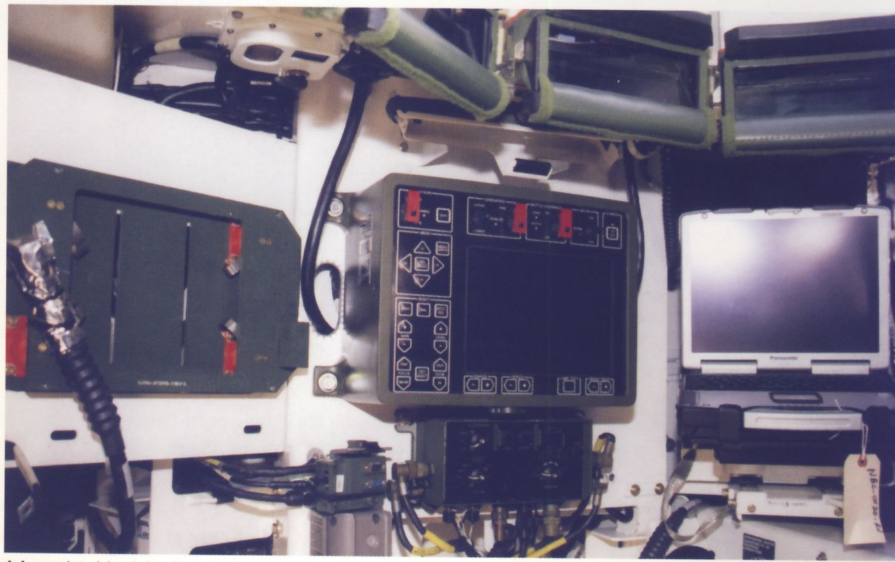
The M1135 Stryker NBCRV does not feature the large power-operated rear ramp common to most other Stryker IAVs. Instead, the vehicle features the "Fox" tail incorporating the DWSS, the heated sensor of the Chemical Biological Mass Spectrometer Block II, the material port, and a split rear door of which one part is dropped while the other is moved upwards. The glove port is situated in the lower part of the door. (Ralph Zwilling)



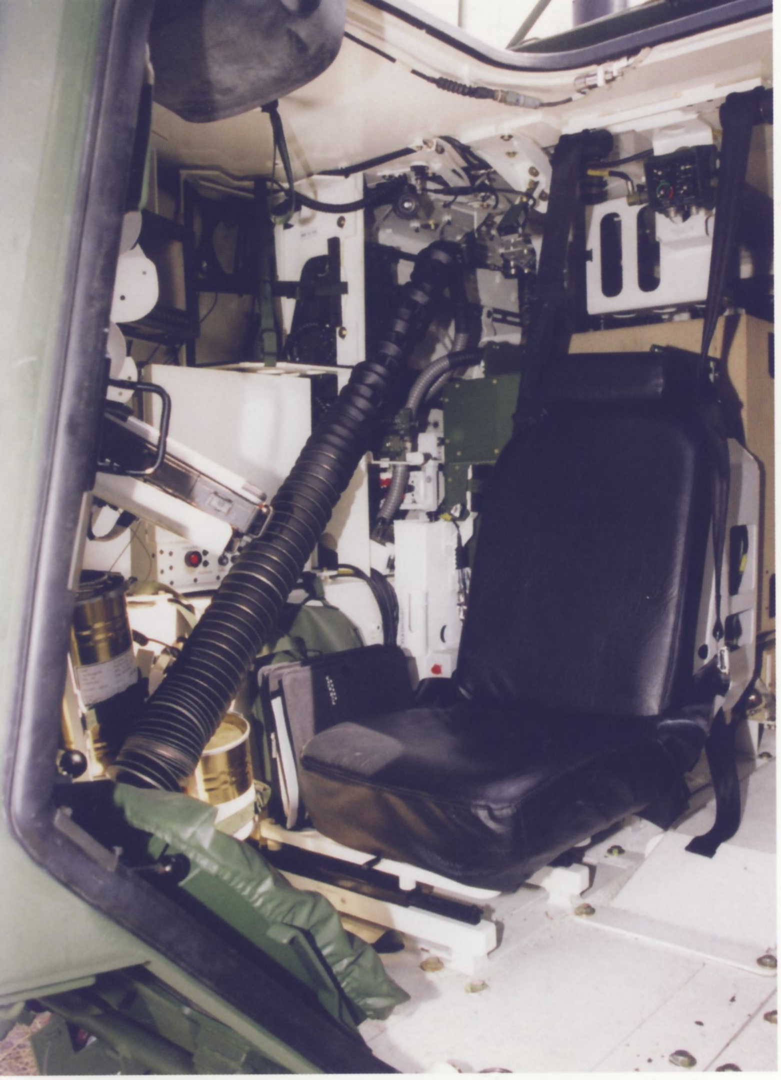
Like the M1126 Stryker ICV, the M1135 Stryker NBCRV is fitted with the M151 RWS. Here, the RWS is fitted with a 12.7mm M2 MG. The sensor package of the M151 RWS includes a zoom CCD day camera, an uncooled IR camera and an integrated laser rangefinder. Attached to the M151 RWS are four M6 smoke grenade dischargers, each with four 66mm tubes. (Ralph Zwilling)

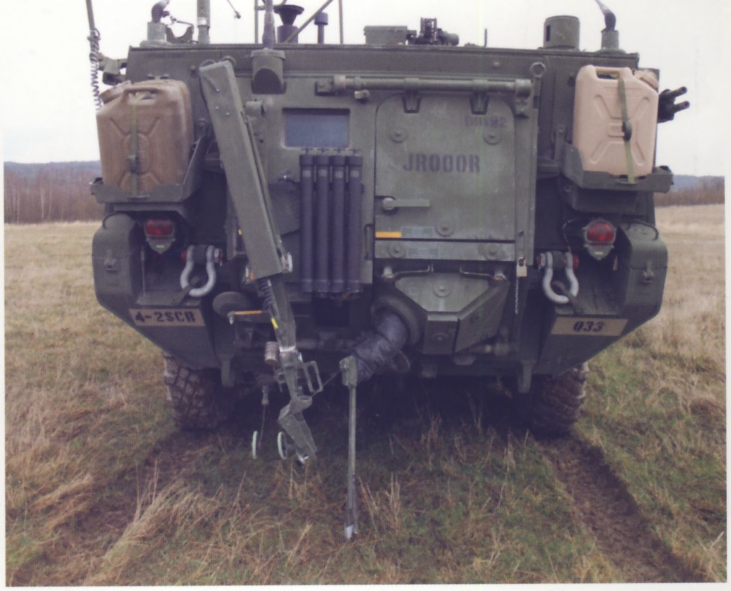


In front of the surveyor's seat are the controls for the CBMS II, the METSMAN Metrological System and the JSLSCAD. The surveyor's workstation is mounted below the CBMS II controls - a rugged flat-panel touch-screen laptop linked to the NBC Sensor Processing Group. (Ralph Zwilling)



Mounted inside the M1135 Stryker NBCRV in front of the commander's seat is the FCU for the M151 Protector RWS. To its left is the commander's workstation linked to the NBCSPG. (Ralph Zwilling)





The M1135 Stryker NBCRV does not feature the usual large rear ramp, but instead it is fitted with the "Fox" tail. Apparent is the storage box for sampling equipment. This is operated by the surveyor via the glove port. It is fitted with a special sealed protective glove and samples are gathered with this and the sampling gripper. Samples are stored in a ground-sample box located above the sampling wheels of the DWSS. (Ralph Zwilling

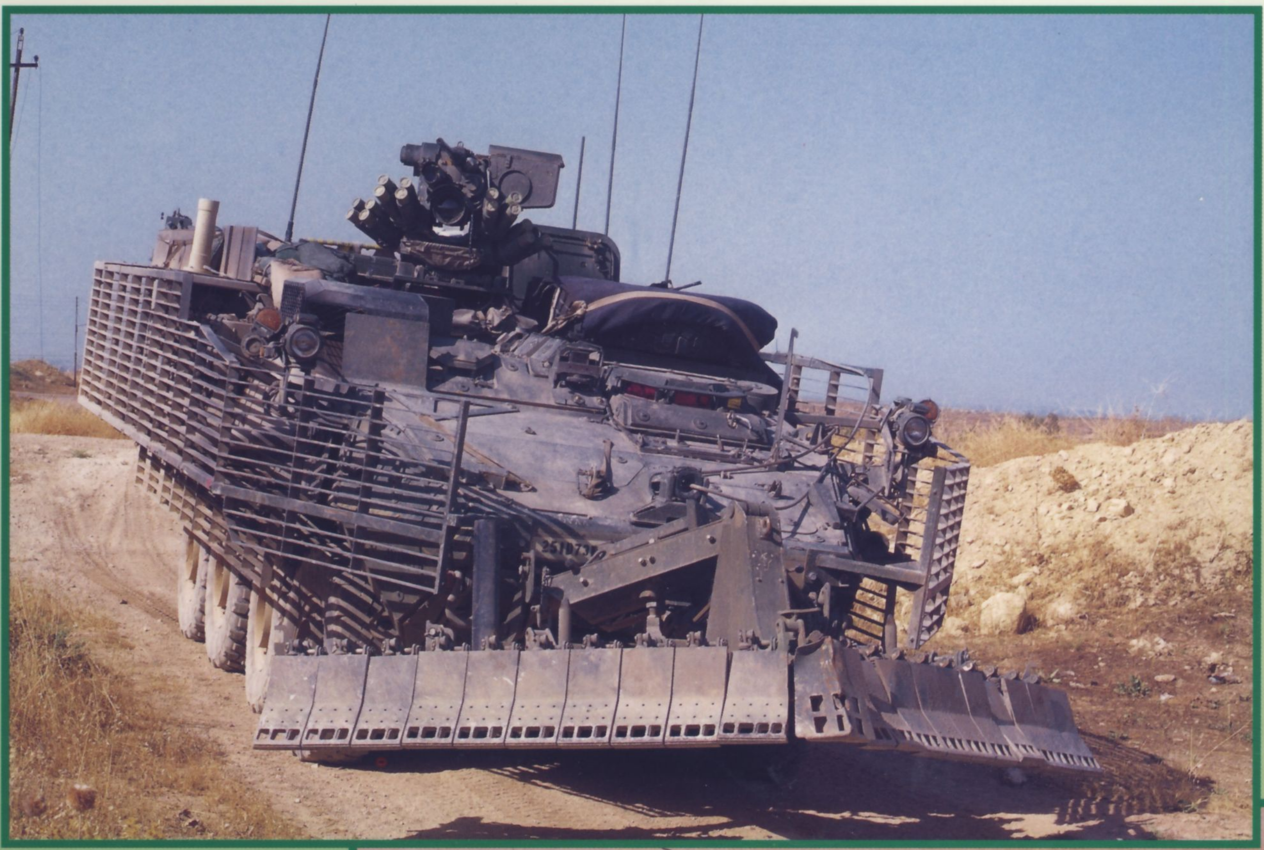
The seat of the surveyor can be seen here. The surveyor operates the DWSS and is also responsible for operating the sampling device and sampling gripper. The Chemical Biological Mass Spectrometer Block II (CBMS II) is situated behind his seat. (Ralph Zwilling)

In SBCT and chemical units at the divisional and corps level, the M1135 Stryker NBCRV will eventually replace the M93A1 Fox. Currently it is estimated the U.S. Army will acquire a total of 42 M1135 Stryker NBCRVs. However, in order to replace the M93A1 fleet, at least 120 vehicles are required. (Ralph Zwilling)

This M1135 Stryker NBCRV belongs to the NBC Reconnaissance Platoon of the Surveillance Troop of the 4th Squadron, 2nd Stryker Cavalry Regiment. The vehicle is one of 17 LRIP vehicles. From this angle the roof-mounted sensors of the vehicle's NBC detection suite can be seen. (Ralph Zwilling)

Acknowledgments

For their outstanding support during research for this publication, sometimes supplied at very short notice, we would like to thank LTC Denny, LTC Reineke, LTC Smiley, MAJ Cadoni, MAJ Green, MAJ Isenhower, MAJ Oskey, MAJ Pike, MAJ Parke, MAJ Soika, CPT Bessler, CPT Boone, CPT Cox, CPT Gentile, CPT Jones, CPT Kenney, CPT Limpert, CPT Parsons, CPT Ryan, CPT Rychecky, CPT Stone, CPT Walter, 1LT Medina, 1LT Naparstek, 1LT Ogrizovich, 1LT Santarosa, 1LT Scott, 1LT Steele, 2LT Acoba, CSM Wood, SGM Dyckman, SSG Austin, SSG Westbrook, SGT Arcelona, SGT Pelletrick, SGT Pena, CH Botsford, Mr. Anderson, Mr. Damario, Mr. Dirkse, Mr. Kieffer, Mr. McQueen and Mr. Zeilmann. Additional thanks also go to all the soldiers of the 3rd Brigade of the 2nd Infantry Division, the 1st Brigade of the 25th Infantry Division, and the 2nd Stryker Cavalry Regiment "Dragoons". It was these men that supported us during countless exercises and during OIF combat operations in Iraq. In addition to offering protection from hostile forces, they shared food and drink, provided shelter, and from time to time, boosted our morale when necessary.



ISBN 962-361-141-2

CONCORD
PUBLICATIONS COMPANY